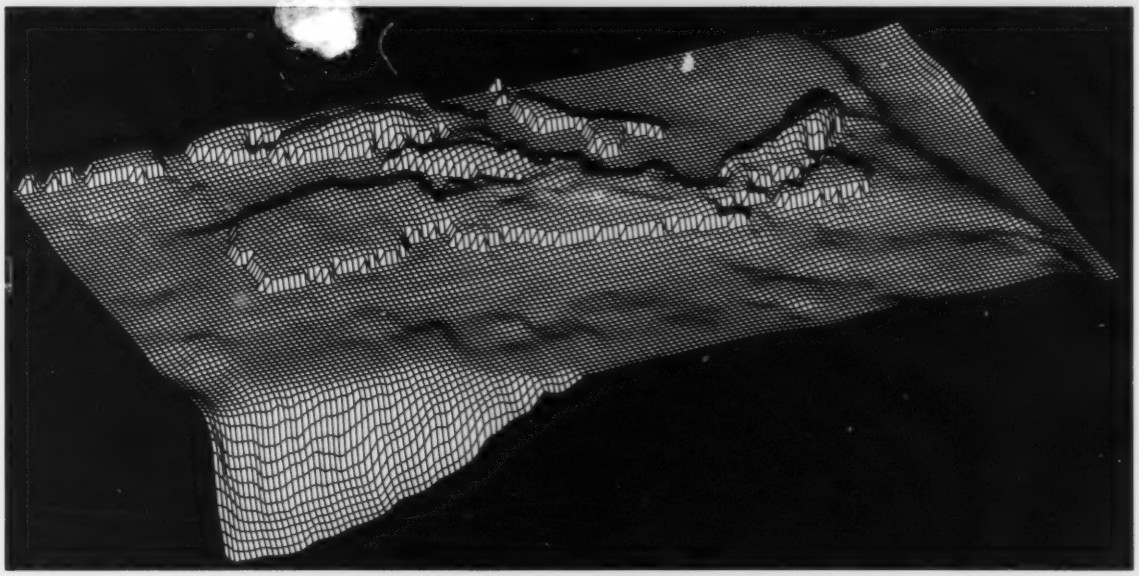
Science and Technology in Nova Scotia



A Directory of Public Sector Research and Development

Prepared by the Technology Transfer Office with the support of the Nova Scotia Department of Industry, Trade and Technology and the Atlantic Canada Opportunities Agency.

Nova Scotia

Canada

90-00453/

This publication was published in September 1989 and is available from the Technology Transfer Office. Any comments or inquiries concerning this publication should be sent to the Technology Transfer Office, P.O. 519, Halifax, Nova Scotia B3J 2R7. Telephone: (902) 424-7381.

Canadian Cataloguing in Publication Data

Main entry under title:

Science and Technology in Nova Scotia

ISBN 0-9694165-0-4

1. Research – Nova Scotia – Directories.
2. Research Institutes – Nova Scotia – Directories.
I. Newman, Brenda Marcia, 1959-
II. Crinean, Kay, 1947-
III. Technology Transfer Office (N.S.)

T177 .C2S35 1989 607 ' .2 ' 716 C89-098638-X

Cover Illustration:

The cover illustration was produced by Swire Defence Systems using bathymetry data obtained from the Atlantic Geoscience Centre, Bedford Institute of Oceanography. Depth/elevation values at each grid point were extracted from a VAX-resident database and transferred to a 3D-CAD system via modem. Grid points on land were artificially raised an extra 200 metres above sea level to highlight the coastline. The area covered is 800 km x 400 km, the mesh size is 5 km and the vertical exaggeration is x 50. The short side of the grid is aligned along a bearing of 325° .

Design and Production:

PageCraft Design Centre, Halifax, Nova Scotia

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Introduction

This directory contains a comprehensive listing of science and technology research and development in the public sector in Nova Scotia. In today's world, technology is becoming an important part of every day business operations. It is often the key to profit and survival. In order to increase Nova Scotia's competitiveness we need to capitalize on the wealth of expertise and facilities described in this directory.

There are twenty universities and public sector research establishments in the province employing over 3,200 scientists and technical specialists undertaking research and development projects worth millions of dollars annually. Many are working on projects and have expertise which can give companies a technical edge.

This directory was compiled by the Technology Transfer Office (TTO) to inform industry and facilitate access to this resource. The mandate of the TTO (funded by the Federal and Provincial governments) is to facilitate interaction between industry and the research community.

The information in the directory was provided by the institutions in response to a questionnaire designed specifically to document their science and technology expertise. The coverage was restricted to institutions performing research and development; training establishments were excluded. Considerable effort was expended to ensure that the information is comprehensive. The institutions represented are diverse, and a great deal of editing was required to standardize the material provided. We hope that this exercise will provide a base from which to build. Although the information was verified as much as was possible, the TTO cannot assume responsibility for its accuracy or validity.

As this is the first edition of this directory, your feedback and suggestions for improvement are requested so that possible future editions can be made more useful. Readers are urged to complete and mail the tear-out form on page 127.

Acknowledgements

We would like to thank the many people who contributed to the design, content and production of the directory. Particular thanks are due to:

- the institutions who contributed the information which makes up the directory;
- the Planning Committee who helped design the content; the members were:

  Fran Isaacs - Information Officer, National Research Council

  Bob MacNeill - Vice President, Finance and Administration,
  Nova Scotia Research Foundation Corporation

  Gordon Owen - Manager, Technology Transfer Office,
  Dalhousie University

  Janine Taylor - Marketing, Advanced Materials Engineering Centre

  Murray Vandewater - Vice President, Operations,
  Applied Microelectronics Institute

Funding for the directory and the Technology Transfer Office has been provided by the **Nova Scotia Department of Industry, Trade and Technology** and the **Atlantic Canada Opportunities Agency** under the Canada/Nova Scotia Technology Transfer and Industrial Innovation Subsidiary Agreement.

The Editors

Kay Crinean
Brenda Newman
Technology Transfer Office

How To Use The Directory

The purpose of this directory is to provide industry with clear, well-organized information about public sector science and technology research and development in Nova Scotia and how to access it. The directory has four sections.

Profiles of the Institutions

The main body of the directory contains standardized, easy to read profiles of each of the institutions. These profiles include:

- main areas of research and development with a detailed breakdown
- major facilities and equipment
- major programs and services
- ways to access these research and development capabilities
- key contact personnel

The profiles provide an overview of each institution and sufficient information for the reader to identify relevant expertise, facilities and research programs. Contact names and telephone numbers are provided for follow-up inquiries.

Index to Research and Development Activities

This index table provides cross-referencing by technical area to the institutions. It is designed to assist in identifying in which institutions a particular technical expertise may be found.

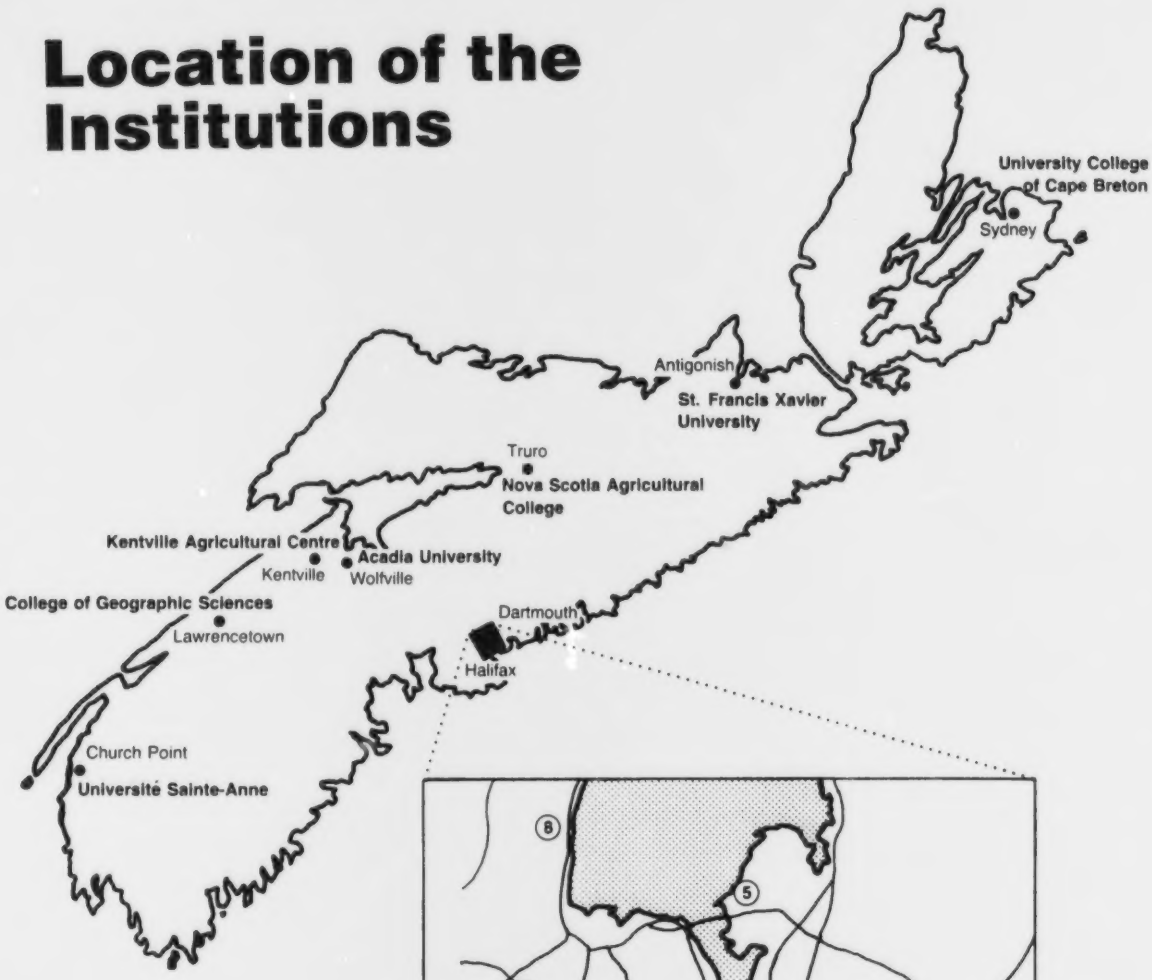
Additional Sources of Technical Expertise and Information

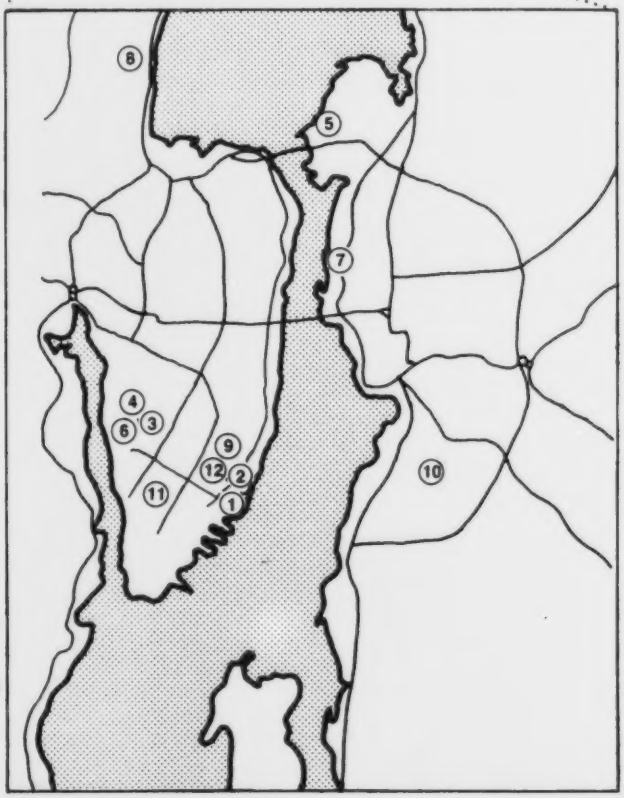
There are many other sources of technical information and services available to industry. These other resources are outside the primary scope of the directory, but some suggestions are listed to indicate avenues of inquiry.

Government Programs

Government programs relevant to industrial research and development and technology investments are briefly described. Contact names are given for follow-up inquiries.

Location of the Institutions





HALIFAX-DARTMOUTH METROPOLITAN AREA INSTITUTIONS

1. Advanced Materials Engineering Centre
2. Applied Microelectronics Institute
3. Atlantic Institute of Biotechnology
4. Atlantic Research Laboratory
5. Bedford Institute of Oceanography
   - Atlantic Geoscience Centre
   - Department of Fisheries and Oceans
6. Dalhousie University
7. Defence Research Establishment Atlantic
8. Mount Saint Vincent University
9. Nova Scotia CAD/CAM Centre
10. Nova Scotia Research Foundation Corporation
11. Saint Mary's University
12. Technical University of Nova Scotia

Profiles of the Institutions

This section contains the detailed profiles of the each of the twenty public sector research institutions listed below. It is important to note that the information provided for each institution is limited to its science and technology expertise only.

Acadia University
Advanced Materials Engineering Centre
Applied Microelectronics Institute
Atlantic Institute of Biotechnology
Atlantic Research Laboratory
Bedford Institute of Oceanography:
- Atlantic Geoscience Centre
- Department of Fisheries and Oceans

College of Geographic Sciences
Dalhousie University
Defence Research Establishment Atlantic
Kentville Agricultural Centre
Mount Saint Vincent University
National Research Council
Nova Scotia Agricultural College
Nova Scotia CAD/CAM Centre
Nova Scotia Research Foundation
Saint Francis Xavier University
Saint Mary's University
Technical University of Nova Scotia
Université Sainte-Anne
University College of Cape Breton

Acadia University

Wolfville, Nova Scotia
B0P 1X0

Tel: (902) 542-2201
Fax: (902) 542-7224

OVERVIEW

Contacts:

Dr. Michael Peach
Director, Graduate Studies and Research
(902) 542-2201 Ext. 498

Dr. Kelvin K. Ogilvie
Vice President (Academic)
(902) 542-2201 Ext. 357

Date established: 1838

Mandate:

- To serve the needs of Nova Scotians through undergraduate education and research programs combined with graduate programs in selected areas.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- biology
- chemistry
- computer science
- engineering
- food science
- geology
- nutrition
- physics

Number of professional and technical staff:

60 scientists and engineers
17 technicians and technical specialists
3 guest scientists
45 graduate students
31 final year honours students

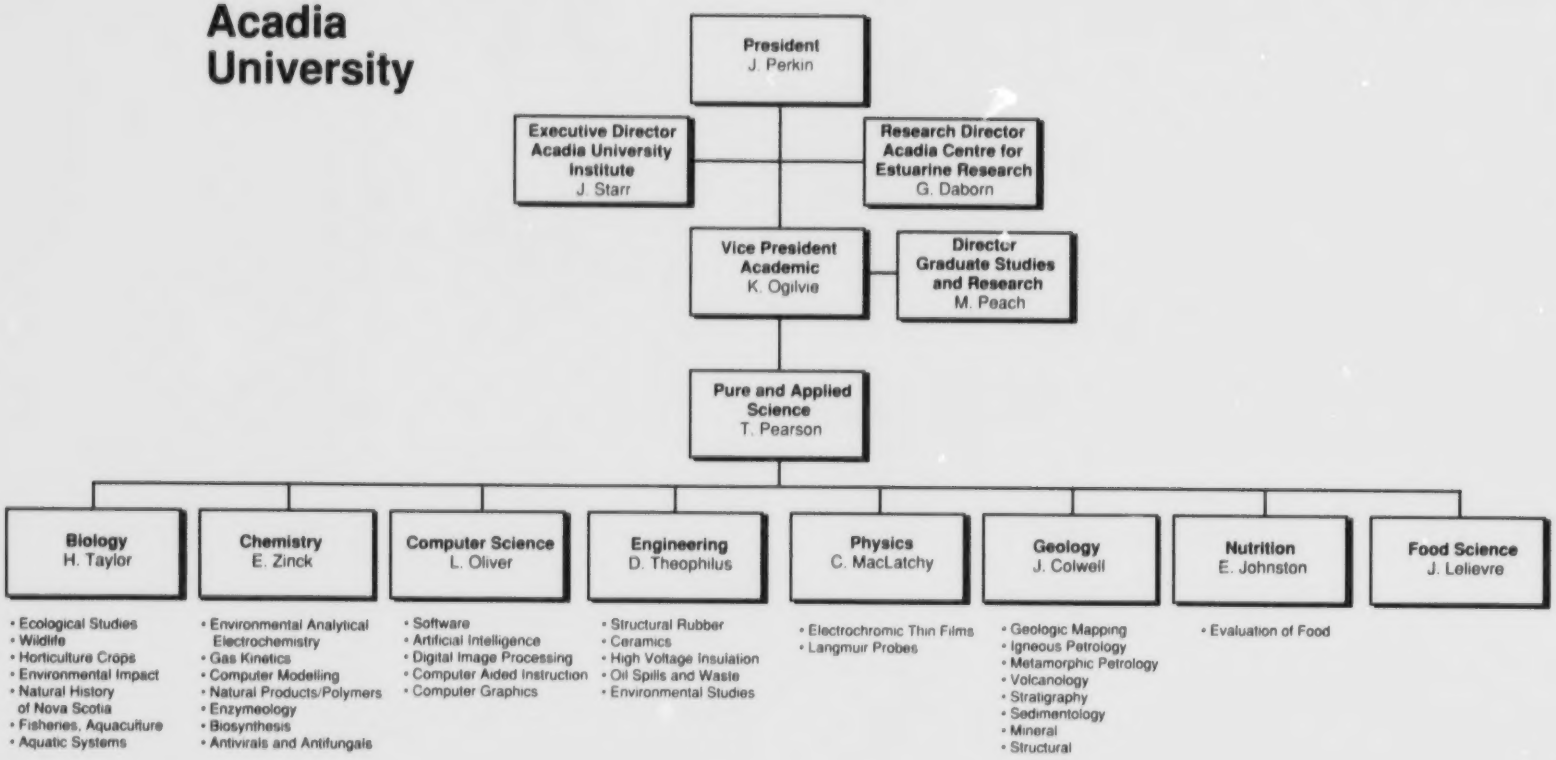
MAJOR FACILITIES AND EQUIPMENT

- high performance liquid chromatography (HPLC)
- scanning electron microscope
- Bon Portage Field Station
- herbarium (vascular plants and fungi)
- pyrolyzer
- evaporation coating unit
- langmuir probe apparatus
- nuclear magnetic resonance spectrometry
- infrared spectrometry
- atomic absorption spectroscopy
- reflectance/transmittance spectroscopy
- library

MAJOR PROGRAMS AND SERVICES

- analysis of natural products by HPLC
- computer software design
- computer modelling of chemical kinetics
- preparation of petrographic thin sections
- sensory evaluation testing
- thin-film fabrication
- chitin chemistry
- access to various databases through library

Acadia University



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- consulting services
- contracts with companies
- technical services
- use of facilities

Actively seeking:

- all of the above

Industry sector contacts to date:

- agriculture
- aquaculture
- fisheries
- forestry
- grape growing
- hydro-power development
- pharmaceuticals
- agrifood
- petroleum
- biotechnology
- mineral exploration
- computer manufacturing
- software development

AFFILIATION WITH OTHER ORGANIZATIONS

Collaborative research projects:

- Laval University
- McGill University
- University of Montreal
- University of Ottawa
- Hydro Quebec
- Canadian Centre for Magnetic Fusion
- Tokamak de Varenne

Acadia University:

- has a member on the Board of Governors of the Plant Biotechnology Institute
- has access to major regional facilities such as the Atlantic Magnetic Resonance Centre, Microprobe, and the X-ray Fluorescence Laboratory.

Advanced Materials Engineering Centre

P.O. Box 1618
Station M
Halifax, Nova Scotia
B3J 2Y3

Tel: (902) 425-4500
Fax: (902) 422-7907

OVERVIEW

Location:

Old Immigration Building, Pier 21, Terminal Road, Halifax

Date established: March 1988

Contact:

Mr. Mel Walker
Manager of Business Development

Mandate:

- To assist Nova Scotian, Canadian and international industry in the development and commercialization of structures, systems and components using advanced materials, and in the automated production of composite materials by pultrusion, filament winding and hybrid techniques.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- pultrusion processing of advanced composites
- plasma spray processing of advanced composites
- engineering and finite element analysis of advanced material structures
- plasma spray coating

Number of professional and technical staff:

7 scientists and engineers
7 technicians and technical specialists
2 guest scientists
6 graduate students

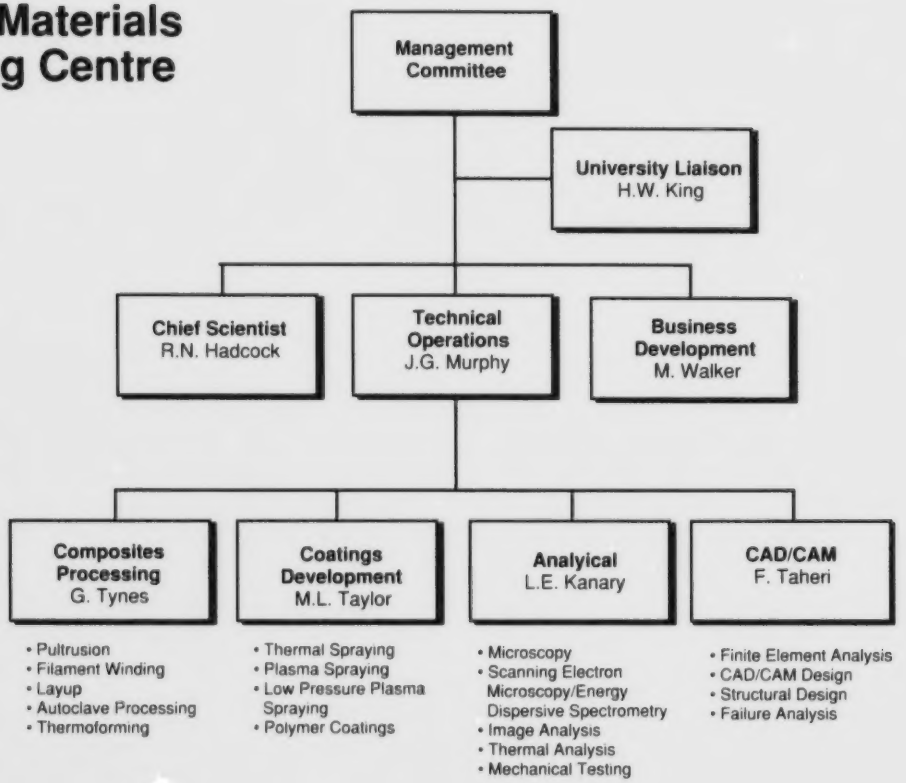
MAJOR FACILITIES AND EQUIPMENT

- 12' x 5' thermoplastic/thermoset autoclave
- 4 ton resin injection pultrusion machine
- 20' x 5' 5 axis filament winder
- 90 kw automated plasma spray
- 4 thermal spray systems
- scanning electron microscopes (2)
- clean rooms
- 200 kn Instron
- -200 C - +600 C Instron test chambers
- +1600 C 4 point bend
- -200 C 4 point bend
- metallographic facilities

MAJOR PROGRAMS AND SERVICES

- energy dispersive x-ray analysis
- digital image analysis
- dilatometry
- thermomechanical analysis
- differential scanning calorimetry
- density measurement
- thermogravimetric analysis
- grit blasting and paint spray
- profilometry
- finite element analysis
- quality control/quality assurance for composites
- composite structure design

Advanced Materials Engineering Centre



TECHNOLOGY TRANSFER ACTIVITES

Current activites:

- collaborative projects
- contracts from companies
- access to specialized equipment and facilities
- consulting services
- contracts from government
- memberships of AMEC

Actively seeking:

all of the above plus:

- informal interactions
- technical services
- use of facilities
- temporary transfer of company staff to AMEC
- memberships of AMEC

Industry sector contacts to date:

- aerospace
- marine/shipbuilding
- construction eg. housing, industrial buildings, bridges
- paint/coatings
- composites production
- electrical

AFFILIATION WITH OTHER ORGANIZATIONS

Founding members with major collaborative projects:

- General Composite Technology Limited, Bedford, Nova Scotia
- Grumman Aerospace Corporation, Bethpage, Long Island, New York
- Technical University of Nova Scotia, Halifax, Nova Scotia

Members:

- Pratt and Whitney Canada, Longueil, Quebec
- Alcan International, Kingston, Ontario
- Apel, Bedford, Nova Scotia
- Amherst Aerospace, Amherst, Nova Scotia
- IMP Group, Halifax, Nova Scotia
- UT Technologies, Halifax, Nova Scotia
- Vaughan Engineering, Halifax, Nova Scotia

Associated organizations:

- National Research Council - Atlantic Research Laboratory
- Centre for Frontier Engineering Research

Applied Microelectronics Institute

1127 Barrington Street
Halifax, Nova Scotia
B3H 2P8

Tel: (902) 421-1250
Fax: (902) 429-9983

OVERVIEW

Contact:

Mr. Murray Vandewater
Vice President, Operations
(902) 421-1250

Date established: 1981

Mandate:

- To focus research and development in emerging microelectronic technologies and provide electronic project design services. AMI is an independent not-for-profit corporation and its services include design, prototype production, manufacturing and testing.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- electronics
- computer hardware
- computer software

Number of professional and technical staff:

20 scientists and engineers
6 technicians and technical specialists
3 graduate students

MAJOR FACILITIES AND EQUIPMENT

Computer system

- VAX 8200
- GPX MicroVAX (3)
- Personal computers
- Printers, plotters, graphic workstation and terminal

Communication facilities

- Develcon data switch
- Datapac 3000
- DECNET

Software

CAD software for printed curcuit board (PCB) simulation, design, documentation and manufacturing support.

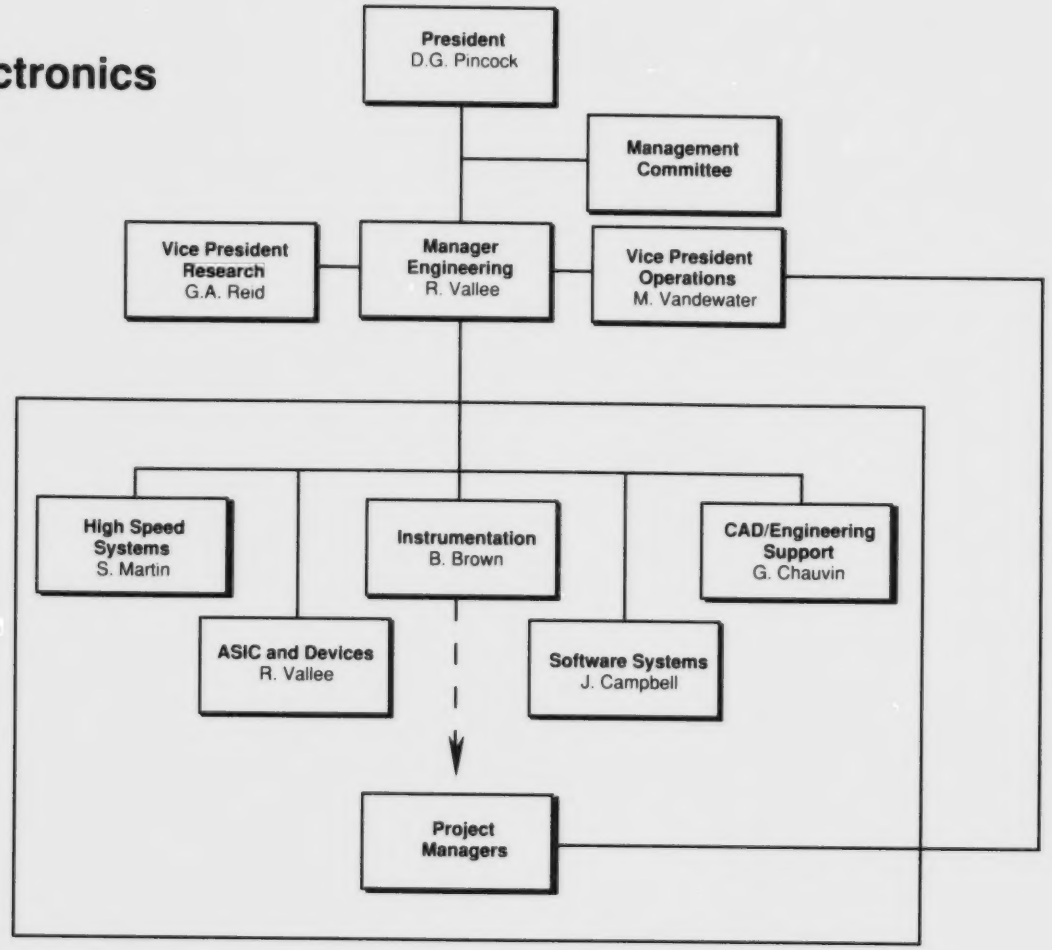
Software tools for:

- software development for 8 and 16 bit microprocessors
- integrated circuit (IC) design
- programming for signal processing activities

Electronic design laborabory
(with lab space available to clients)

- development support for XILINX Programmable Logic Devices
- 48 channel digital logic analyzer
- 300 MHz digital storage oscilloscope
- data I/P 22B PROM programmer
- environmental chamber
- IC testing equipment
- ultrasonic wire bonder

Applied Microelectronics Institute



MAJOR PROGRAMS AND SERVICES

Electronic design and development services including:

- contract product development in electronic systems
- hardware prototype and manufacturing support
- CAD support for complex printed circuit board design and layout
- VLSI design
- remote access to computer-based design tools
- access to laboratory space and specialized equipment
- expert assistance in the preparation of proposals and technical management

TECHNOLOGY TRANSFER ACTIVITES

Current activites:

- informal interactions
- licensing agreements
- contracts from companies
- contracts to companies
- contracts from government
- collaborative projects
- consulting services
- technical services
- temporary transfer of staff to companies
- temporary transfer of company staff to laboratory
- use of facilities
- graduate/scientific exchange

Actively seeking:

- all of the above

Industry sector contacts to date:

- fishery
- consumer
- communications
- defence research
- medical devices

AFFILIATION WITH OTHER ORGANIZATIONS

Sister/parent/daughter organizations:

- Nova Scotia Research Foundation
- Technical University of Nova Scotia
- Dalhousie University

Major collaborative research programs:

- Defence Research Establishment Atlantic
- Canadian Microelectronics Corporation

AMI has access to national and international science and technology databases and networks.

Atlantic Institute of Biotechnology

6093 South Street
Halifax, Nova Scotia
B3H 1T2

Tel: (902) 421-1072

OVERVIEW

Contact:

Mr. Max Moseley
Secretary-Treasurer
(902) 421-1072

Date established: 1985

Mandate:

- To assist the private sector in Atlantic Canada to become more competitive through the use of technological innovation (where biotechnology and other applied biology can be utilized).

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- AIB is an independent, self-governing, incorporated, not-for-profit organization.
- AIB is a hands-on organization providing project development, project management, commercial intelligence and financial assistance to private-sector firms and associations. The nature and extent of assistance is totally flexible, according to client need. Financial assistance may be in the form of research loans or equity participation.
- Projects are reviewed and approved by an Executive Committee of the Board. Members of the Committee represent the industrial, agricultural and business communities of the Atlantic Provinces. In addition, the Committee includes one scientific advisor and (normally) two AIB staff representatives.
- Projects may be research and development, technology transfer, or both.

MAJOR PROGRAMS AND SERVICES

- Capability to gather and access market, business, technical and scientific intelligence on biotechnology.
- A small library of selected biotechnology-related newsletters, abstracts and journals.
- AIB does not have in-house laboratory or engineering facilities. Projects are conducted in the facilities of the client, or in university/government laboratories.

TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- consulting services
- contracts from companies
- contracts to companies
- contracts from government
- licensing agreements

Industry sector contacts to date:

- agriculture
- forestry
- food processing
- aquaculture
- human health care
- mining (bioleaching of ores)
- leisure (ski resorts)

Actively seeking:

- same as above

AFFILIATION WITH OTHER ORGANIZATIONS

Atlantic Institute of Biotechnology:

- Is sponsored by Dalhousie University, Technical University of Nova Scotia, Nova Scotia Research Foundation Corporation and Nova Scotia Agricultural College.
- Is an intermediary for the Canada Patent Office.

Atlantic Research Laboratory

National Research Council

1411 Oxford Street
Halifax, Nova Scotia
B3H 3Z1

Tel: (902) 426-8332
Fax: (902) 426-9413

OVERVIEW

Location: Dalhousie University campus

Date established: 1952

Contact:

Mr. Myles MacKinnon
Industrial Liaison Officer
(902) 426-8589

Mandate:

- To establish and maintain world-class expertise in areas of research important to Canadian industry, particularly in the Atlantic provinces.
- To maximize the potential economic benefits from that expertise.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- marine biosciences
- biological chemistry
- analytical chemistry
- industrial materials and processes

Number of professional and technical staff:

- 35 scientists and engineers
- 20 technical specialists
- 10 to 20 guest scientists throughout the year
- approximately 20 students during the summer

MAJOR FACILITIES AND EQUIPMENT

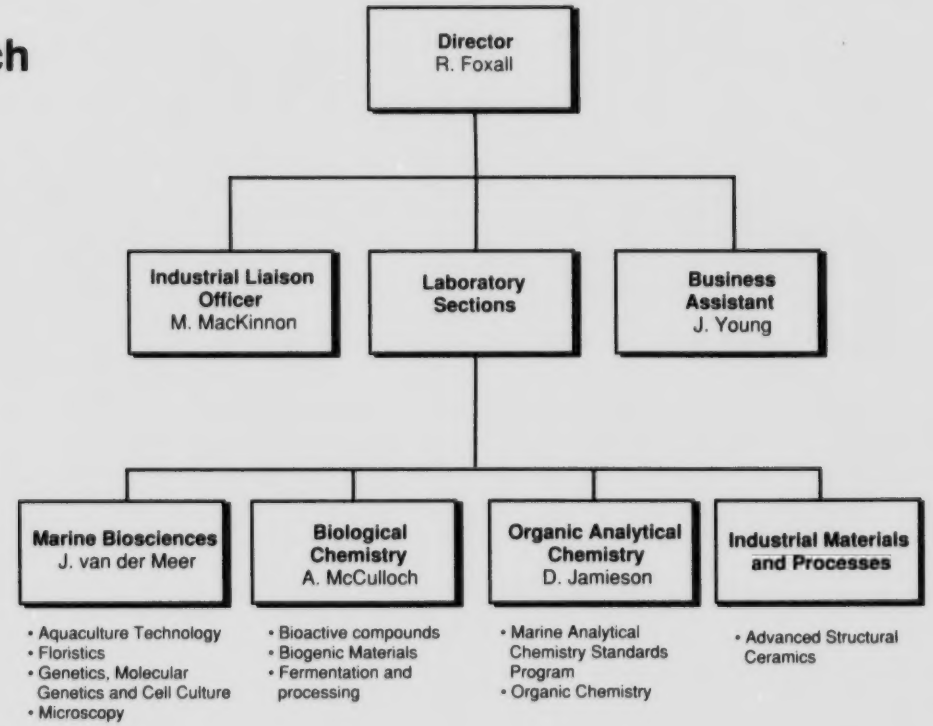
- high performance liquid chromatography
- atomic absorption spectroscopy
- scanning electron microscopy
- infra-red spectroscopy
- nuclear magnetic resonance spectrometry
- mass spectroscopy
- fermentation and processing
- isostatic presses
- high temperature furnaces
- powder and particle analysis
- aquaculture research station on the Atlantic coast

MAJOR PROGRAMS AND SERVICES

- Marine Analytical Chemistry Standards Program
- co-ordination of NRC's Interlaboratory Advanced Ceramics Program

Atlantic Research Laboratory

National Research Council



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- access to specialized equipment and facilities
- collaborative projects
- licensing agreements
- provision of advice and information
- research and development contracts with firms
- temporary accommodation of company personnel

Actively seeking:

- informal interactions
- licensing agreements
- contracts from companies
- collaborative projects
- consulting services
- technical services
- use of facilities

Industry sector contacts to date:

- pharmaceutical
- fish harvesting and processing
- aquaculture
- food and beverage
- advanced ceramics
- engineering consultants
- instrument manufacturing
- marine consultants and laboratories
- paint manufacturing
- electronics manufacturing
- metal fabrication

AFFILIATION WITH OTHER ORGANIZATIONS

Atlantic Research Laboratory:

- Is local industry's contact point for access to scientific and technical expertise in all of the 15 National Research Council (NRC) laboratories and institutes across the country.
- Offers "one-stop" shopping access to NRC's researchers and industry support programs including NRC's Industrial Research Assistance Program (IRAP).
- Houses a branch of Canada's national science library: the Canada Institute for Scientific and Technical Information (CISTI). This branch offers access to a full range of information databases and services.
- Is an access point for local industry to NRC's linkages with most of the major industrial organizations, industry groups, private research and development laboratories, other government departments and agencies, and universities in Canada.

Bedford Institute of Oceanography

P.O. Box 1006,
Dartmouth, Nova Scotia
B2Y 4A2

Tel: (902) 426-3870/426-2626

OVERVIEW

The **Bedford Institute of Oceanography**, the **Halifax Fisheries Research Laboratory** and the **St. Andrews Biological Station** are research establishments of the Government of Canada operated by the Department of Fisheries and Oceans (DFO), both on its own behalf and – in the case of BIO – for the other federal departments that maintain laboratories and groups at the Institute. At BIO, there are two such departments, the Department of Energy, Mines and Resources and the Department of the Environment.

The Department of Energy, Mines and Resources maintains two units at BIO, the *Atlantic Geoscience Centre* of the Geological Survey of Canada and the *Canada Oil and Gas Lands Administration Laboratory*.

The Department of the Environment also maintains two units at BIO, the *Seabird Research Unit* of the Canadian Wildlife Service and the *Regional Laboratory of the Atlantic Region's Conservation and Protection Branch*.

DFO operates a fleet of research vessels, together with several smaller craft out of BIO.

The broad objectives of the research undertaken by the three research establishments are:

1. To perform applied research leading to the provision of advice on the management of our marine environment including its fisheries and offshore hydrocarbon resources.

2. To perform fundamental long-term research in accordance with the mandates of the resident departments.

3. To perform necessary surveys and cartographic work to ensure a supply of suitable navigational charts for the region from Georges Bank to the Northwest Passage in the Canadian Arctic.

4. To respond with all relevant expertise and assistance to any major emergency within the same region.

Please refer to the following two organizational profiles (the Atlantic Geoscience Centre and the Department of Fisheries and Oceans) for more detail on the research at the Bedford Institute of Oceanography.

Atlantic Geoscience Centre

Geological Survey of Canada
Energy, Mines and Resources Canada

Bedford Institute of Oceanography
Dartmouth, Nova Scotia
B2Y 4A2

Tel: (902) 426-8513
Telex: 019-31552
Fax: (902) 426-4266

OVERVIEW

Contact:

Keith Manchester
Head, Program Support Subdivision
(902) 426-3411

Date established: April, 1972

Mandate:

- To ensure that geological information and expertise are available for the offshore regions of Atlantic and Arctic Canada, the sedimentary basins of the Appalachian region, and for the ocean basins in general when necessary. This knowledge and information is directed to the following national needs: identifying the base of available resources; the formulating of mineral and energy policy; making the exploration for Canadian resources easier; and enhancing the nation's intellectual base in the earth sciences.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- environmental marine geology
- basin analysis
- regional reconnaissance

Number of professional and technical staff:

57 scientists and engineers
46 technicians and technical specialists

MAJOR FACILITIES AND EQUIPMENT

- seismic refraction data processing facility
- potential field data processing and scientific visualization facilities
- atomic absorption spectroscopy
- x-ray diffraction
- grain size analysis laboratory
- geotechnical measurements laboratory
- TAS image processing facility
- video production and editing facility
- scanning electron microscope facility
- x-ray photography and video facility
- sample and data curation facilities

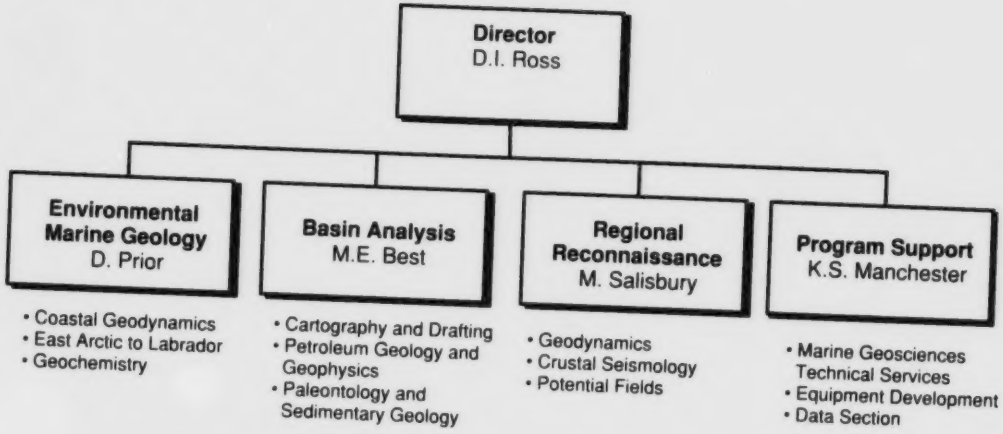
MAJOR PROGRAMS AND SERVICES

- data services via Data Section
- Geological Survey of Canada Open File viewing facility
- access to other facilities on a collaborative basis

Atlantic Geosciences Centre

Geological Survey of Canada

Energy, Mines and Resources Canada



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal activities
- collaborative projects
- consulting services from companies
- consulting services to companies
- contracts to companies, directly
- contracts to companies, unsolicited proposals
- licensing agreements through CPDL
- technical services (company to laboratory)
- temporary transfer of staff to companies
- use of facilities and equipment

Actively seeking:

The technology transfer policy at the Atlantic Geoscience Centre is currently under review. Contact AGC for further information on their activities.

Industry sector contacts to date:

- hardware development and maintenance
- instrument development
- software development
- microfilming
- petroleum
- oceanographic-related industry

Department of Fisheries and Oceans

Scotia-Fundy Region
Science Sector

P.O. Box 1006
Dartmouth, Nova Scotia
B2Y 4A2

Tel: (902) 426-3870/426-2626
Telex: 019-31552
Fax: (902) 426-2256/426-7827

OVERVIEW

Location:

Bedford Institute of Oceanography

Contact:

Ms. Catherine Clute
Ocean Technology Promotion Officer
(902) 426-3698

Date established: 1962

Mandate:

- To perform fundamental long-term research in marine (physics, chemistry and biology) and fisheries sciences.
- To perform short-term applied research for management of marine resources.
- To perform survey and cartographic work to produce suitable navigational charts for eastern Canada, including the Northwest Passage and Arctic.
- To provide ocean information services.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- marine biosciences eg. stock assessment, assessment methodologies, ecology, aquaculture
- biological chemistry eg. distribution of fluxes, properties of chemical parameters, toxicology
- analytical chemistry
- marine physics eg. climate hindcasting/forecasting
- hydrographic surveys, navigational charts, survey techniques

Number of professional and technical staff:

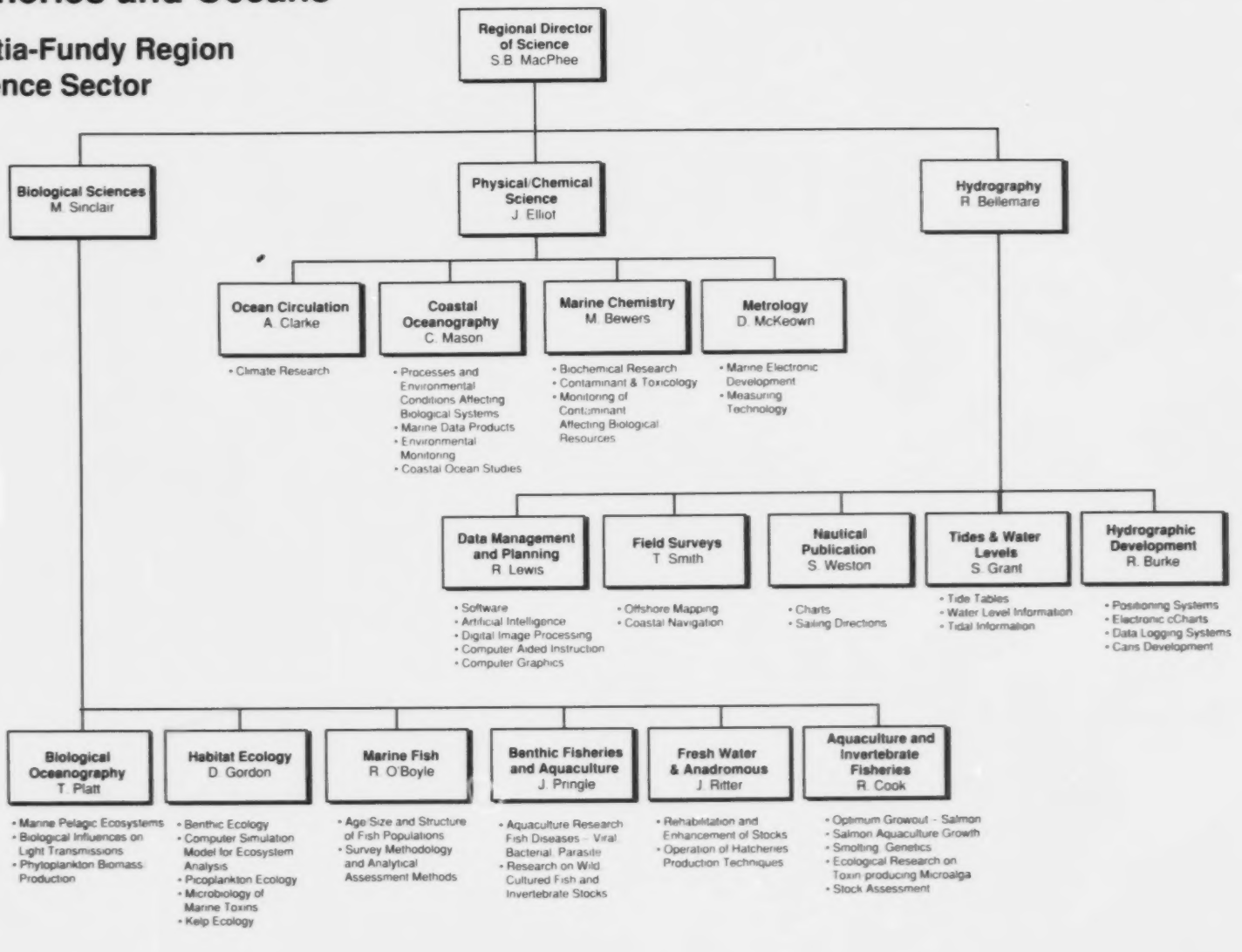
298 scientists and engineers
270 technicians and technical specialists
3-4 guest scientists

MAJOR FACILITIES AND EQUIPMENT

- research vessels
- library services
- environmental data bases and data products
- VAX-11/750 image analysis system with a SUN 3/160 workstation
- CDC Cyber 180-840, 16 Mb Central Memory, dual state NOS-NOS/VE, 4 Gb disk storage
- atomic absorption spectrophotometer
- graphite furnaces
- gas chromatograph mass spectrometers
- liquid scintillation counters
- alpha, beta, gamma spectrometers
- high performance liquid chromatographs
- fluorescence fine imager
- electrophoretic equipment

Department of Fisheries and Oceans

Scotia-Fundy Region Science Sector



TECHNOLOGY TRANSFER ACTIVITES

Current activities:

- informal interactions
- contracts to companies
- collaborative projects
- technical services

Actively seeking:

- informal interactions
- collaborative projects
- consulting services from companies
- technical services
- use of facilities

Industry sector contacts to date:

- oil and gas
- aquaculture
- engineering firms
- fishing
- transportation

AFFILIATION WITH OTHER INSTITUTIONS

The principal laboratories and departments located at BIO are:

- DFO (Physical and Chemical Sciences, Biological Sciences, Canadian Hydrographic Service)
- Atlantic Geoscience Centre of the Department of Energy, Mines and Resources
- The Seabird Research Unit of the Department of the Environment
- The Atlantic Regional Laboratory of the Canada Oil and Gas Lands Administration of the Department of Energy, Mines and Resources.

Collaborative projects:

- involved in the Canadian Atlantic Storms project
- will participate in the World Ocean Circulation Experiment

DFO has access to a broad range of national science networks and data bases such as: CAN/OLE; DIALOG; WAVES/VAGUES (holdings of the DFO libraries across Canada); National Technical Information Service (NTIS); and MEDS (Marine Environment Data Service).

College of Geographic Sciences

51 Elliott Street
Lawrencetown
Annapolis County, Nova Scotia
B0S 1M0

Tel: (902) 584-2226
Fax: (902) 584-7211

OVERVIEW

Contact:

Mr. John Wightman
Principal
(902) 584-2226

Date established: 1949

Mandate:

- To train technologists in the fields of surveying, mapping, land-use planning, remote sensing and related computer programming.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- geographic information systems
- remote sensing
- computer programming
- cartography
- planning
- surveying

Number of professional and technical staff:

8 scientists and engineers
12 technicians and technical specialists

MAJOR FACILITIES AND EQUIPMENT

- Prime 750 and Prime 4050 minicomputer
- VAX 11/785 minicomputer
- ARC/INFO system
- ARIES system
- Medusa design drafting system
- PCI image analysis system
- TYDAC "SPANS" system
- Universal Systems "CARIS" system
- FMS/AC computer mapping system
- Autocad/Civilcad/Generic CAD design/drafting systems
- digital typesetting system

TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- consulting services
- use of facilities (conferences)

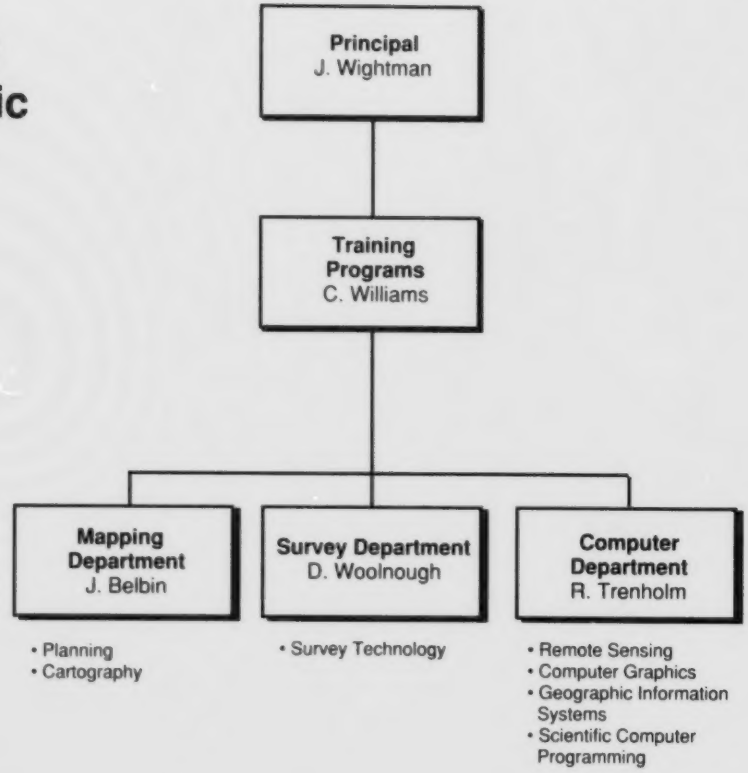
Actively seeking:

- informal interactions
- collaborative projects
- provision of advice and information
- use of facilities
- access to specialized equipment

Industry sector contacts to date:

- surveying and mapping
- computer programming and applications
- forestry
- fisheries
- agriculture
- mineral exploration
- ocean
- environmental monitoring
- parks and recreation
- municipal information services

College of Geographic Sciences



Dalhousie University

Halifax
Nova Scotia
B3H 4H6

Tel: (902) 424-2211

OVERVIEW

Contact:

Mr. C. Gordon Owen, Manager
Technology Transfer Office
6093 South Street
Halifax
Nova Scotia
B3H 1T2

Tel: (902) 424-1648
Fax: (902) 424-1658
TELEX: 019-21863 DALUNIV HFX

Date Established: 1818

Mandate:

- To conduct post-secondary and post-graduate education and training in the sciences and humanities, medical, dental, and legal professions, along with extensive pure and applied research and development.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- pure and applied biology, chemistry, geology, physics, engineering and mathematics
- medicine
- biomedicine and pharmaceutics
- dentistry
- marine science and equipment development
- development and application of computer based technology
- technology management, transfer, and impact assessment
- resource and environmental management

Number of professional and technical staff:

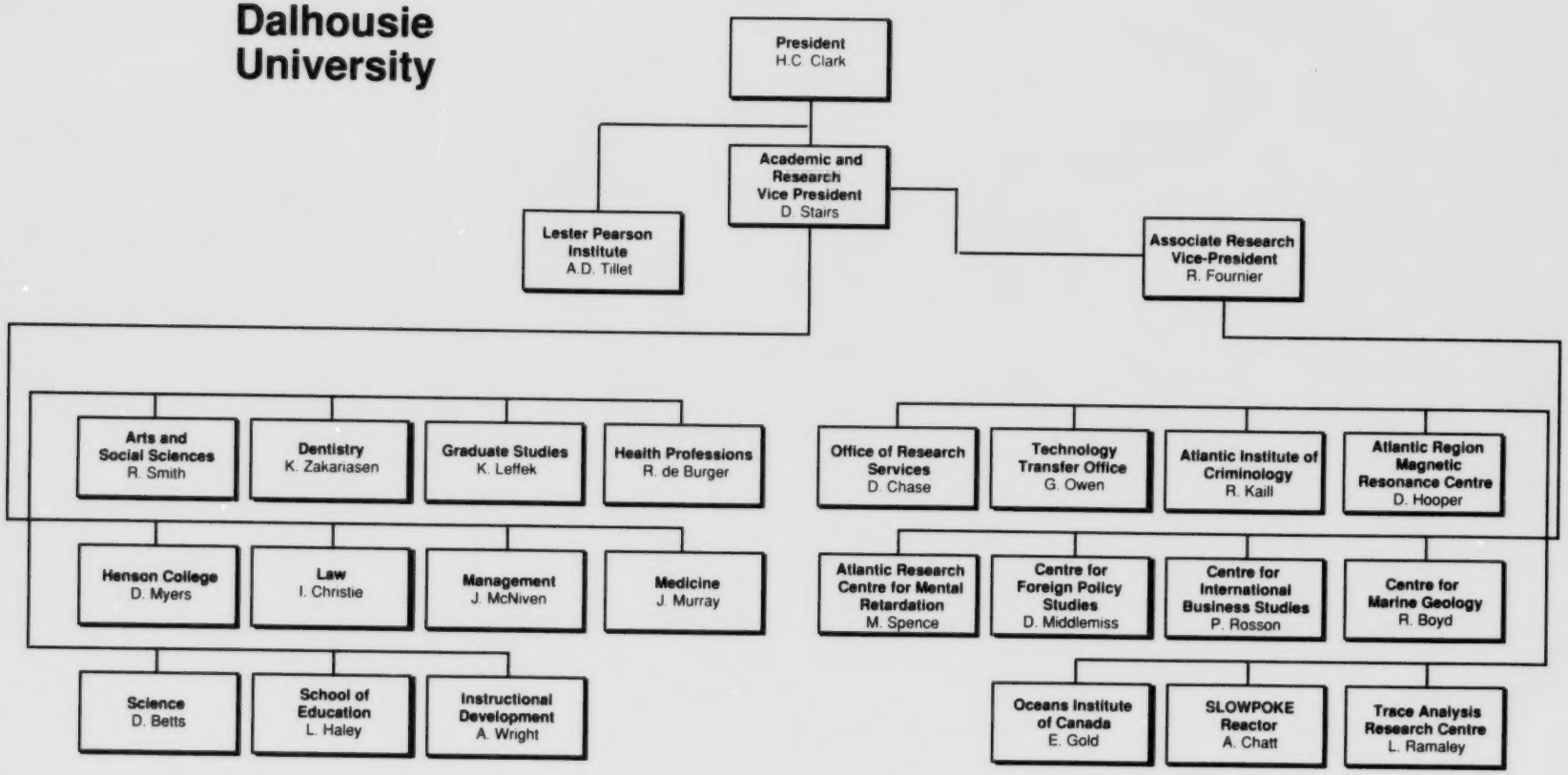
1100 scientists and engineers
406 technicians and technical specialists
45 guest scientists
470 graduate students

Specific research and development activities:

Biology, chemistry, geology and physics:

- genetic biotechnology
- forest ecology and management
- sustained agriculture methods
- development of nuclear analytical methods
- nuclear magnetic resonance spectroscopy
- chemical and environmental analysis
- economic geology
- coal research
- micropalaeontology
- magnetic field and magnetism research
- optics and light source physics
- crystallography

Dalhousie University



Medicine, biomedicine and pharmaceutics:

- pharmaceutical development and evaluation
- clinical development and evaluation
- applications of computer based technology
- technical advances in environmental testing
- genetic biotechnology
- dental biomaterials development and evaluation
- patient evaluation and related technology
- physical rehabilitative techniques and technology
- biomedical testing
- biomedical engineering

Development and application of computer-based technology:

- computerized medical assessment
- social science applications
- computerized physiotherapy equipment
- computer-assisted instruction
- complex data base systems
- expert systems and artificial intelligence
- numerical software for scientific problems
- information retrieval systems
- computer modelling

Resource and environmental management and research:

- technical advances in environmental testing
- natural resource management
- atmospheric science
- coastal zone management
- marine pollution
- remote sensing
- human and physical resource studies

Marine science and equipment development:

- aquaculture methods and technology
- marine mammal biology
- coastal resource management
- marine geology and geophysics
- biological, chemical and physical oceanography
- marine chemistry
- fisheries biology
- ocean productivity studies

Technology management, transfer and impact assessment:

- third world technology transfer
- socioeconomic impact studies
- strategic alliances in research and development
- social survey research
- economic modelling

MAJOR FACILITIES AND EQUIPMENT

- reference library on expert systems
- dedicated systems for artificial intelligence
- electron microscopy
- 360 Mhz Nicolet NB nuclear magenetic resonance spectrometer
- central tissue culture facility
- biochemical and pharmacological analysis techniques
- computerized laser scanning light microscopy
- crystallography
- high vacuum and evaporation technology

MAJOR PROGRAMS AND SERVICES

- criminology seed money program
- custom complex database design for business application
- training courseware for classroom and business applications
- photomicroscopy
- Trace Analysis Research Centre (TARC)
- Slowpoke Nuclear Reactor Facility
- specialized land-based marine research facilities (Aquatron)
- biological and medical sample analysis
- microprobe elemental analysis
- high pressure test facility for physical properties
- radiogenic and fission track dating
- oceanographic equipment design, construction, and deployment
- concrete design and testing
- Nova Scotia Newborn Screening Program
- liquid nitrogen and helium production
- x-ray characterization of materials
- biological, medical and dental testing programs
- translation of scientific and technical reports

TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- consulting services
- contracts from government
- contracts from companies
- formal discussions and conferences with professionals
- licensing agreements
- scientific translations
- technical services
- use of facilities

Actively seeking:

- informal interactions
- collaborative projects
- consulting services
- contracts from companies
- contracts from funding agencies
- contracts from government
- licensing agreements
- technical services
- temporary transfer of company staff to laboratory (TARC)
- use of facilities

Industry sector contacts to date:

- instrument manufacturers
- oil
- nuclear
- consulting firms
- aquaculture producers and suppliers
- agriculture
- fish food producers
- mining
- forestry
- finance
- public utilities
- medical, dental and pharmaceutical
- computer hardware and software
- labour
- construction
- food processing
- chemical

AFFILIATION WITH OTHER ORGANIZATIONS

Dalhousie University has a range of associations with:

- provincial and federal government departments, agencies and laboratories
- educational and other academic institutions locally, nationally and internationally
- non-governmental funding and research agencies
- hospitals

Defence Research Establishment Atlantic

9 Grove Street
Dartmouth, Nova Scotia
B2Y 3Z7

Tel: (902) 426-3100
Fax: (902) 426-9654

Internet: DRENET, ADDRESS: POSTMASTER @ XX.DREA.DND.CA
Library NET: Envoy 100, ADDRESS: DREA.INFO.SVCS

OVERVIEW

Contact:

Mr. Walter Ellis
Staff Officer/Plans and Programs
(902) 426-3100, Ext. 156

Date established: 1940

Mandate:

- DREA is one of six laboratories reporting to the Chief, Research and Development Branch of the Department of National Defence, whose mandate is to provide effective and timely scientific support to the Canadian Forces.
- DREA's capabilities are in the area of naval ships and submarines and their Anti-submarine Warfare (ASW) acoustic sensors and ASW acoustic sensors for Maritime patrol aircraft.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- underwater acoustics for active and passive sonar systems
- advanced signal processing
- underwater transducer design
- hydronautics for surface ships and submarines
- structural mechanics for surface ships and submarines
- propulsion systems for surface ships and submarines
- marine materials

Number of professional and technical staff:

70 scientists and engineers
83 technicians and technical specialists

MAJOR FACILITIES AND EQUIPMENT

- underwater acoustics transducer calibration facilities
- high pressure (10K PSI) test facilities for underwater equipment
- marine materials advice, NDT and failure analysis
- modern, extensive computer facilities
- scientific research-oriented library and periodical reading room
- 2200-ton displacement research ship CFAV QUEST

TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- collaborative projects - Defence Industrial Research Program (DIR)
- research contracts to companies (totalling approximately $5 M annually)
- licensing agreements

Actively seeking:

- research contracts to companies
- collaborative projects - DIR proposals from companies
- licensing agreements

Industry sector contacts to date:

- electronic design and manufacture (underwater equipment, advanced computers)
- marine mechanical design and manufacturing
- scientific software engineering
- consultants (scientific, engineering studies)
- marine materials fabrication, testing and evaluation; welding techniques
- hydromechanic measurements and analysis
- ships and submarines structural design and analysis

AFFILIATION WITH OTHER ORGANIZATIONS

Defence Research Establishment Atlantic:

- Is one of six Defence Research Laboratories reporting to the Chief, Research and Development Branch of the Department of National Defence
- Participates in collaborative defence research programs with allied countries in the main areas of research and development previously listed
- Has access to the defence research activities and facilities of many allied countries. Formal information exchange is carried out with these countries.
- Is in close contact with National Defence Headquarters development and engineering directorates.

Other:

DREA is subject to the Federal Government policy of maximum contracting-out of research and development. About 50% of DREA research contracts are with Nova Scotia companies, and capable Nova Scotia companies are invited to compete for a share of the remainder of DREA requirements.

Kentville Research Station

Agriculture Canada

Kentville, Nova Scotia
B4N 1J5

Tel: (902) 678-2171
Fax: (902) 678-9855

OVERVIEW

Location:

Main Street (east end)

Date established: 1911

Contacts:

Mr. Richard Lawrence
Technology Development Officer
(902) 678-2171 Ext. 288/314

Ms. Tara Smith
Food Industry Liaison Officer
(902) 678-2171 Ext. 291

Mandate:

- To develop new products and innovative technologies to enhance the competitiveness and marketability of the horticultural and poultry agri-food sectors in Atlantic Canada.
- Through its affiliated Nappan Experimental Farm at Nappan, Nova Scotia: to develop cost-effective production systems for the beef and swine industries in Nova Scotia.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- genetic improvement of fruit crops
- sustainable agricultural technologies for crop production and protection
- storage and handling systems for fruit and vegetables
- food research

Number of professional and technical staff:

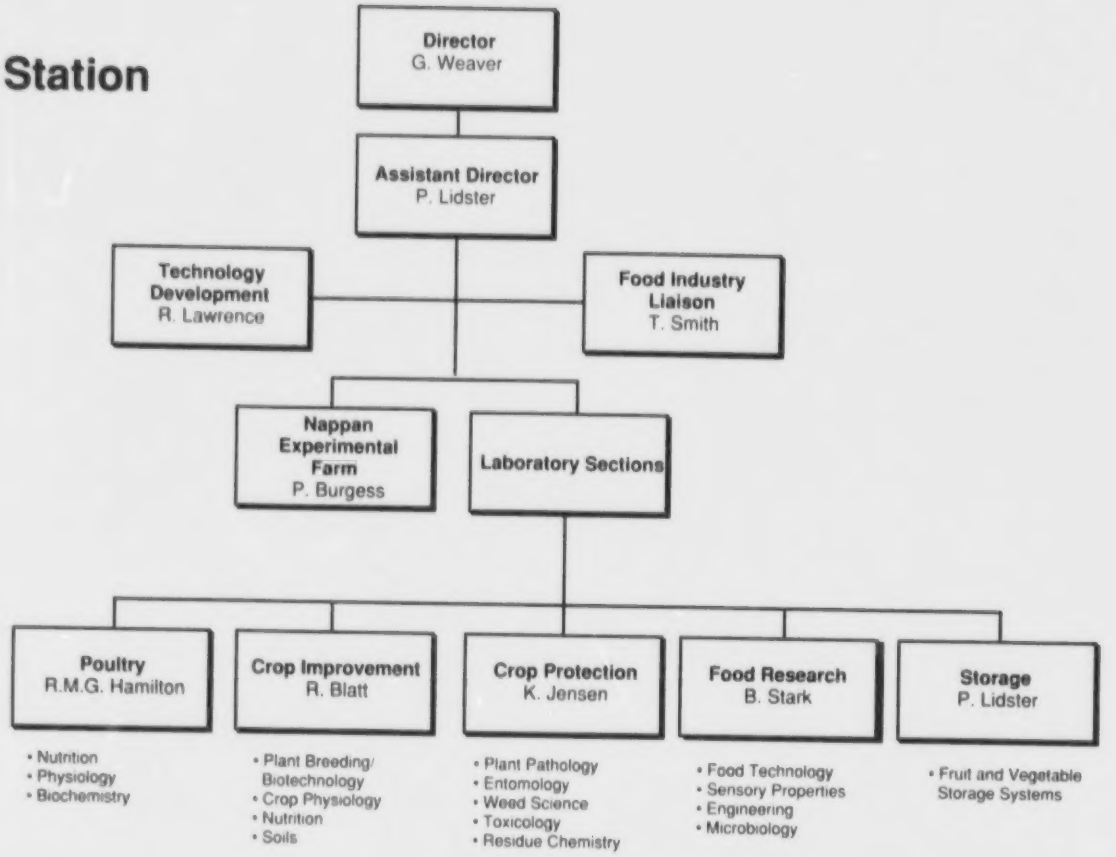
36	scientists and engineers
36	technicians and technical specialists
10	(approx.) guest scientists throughout the year
2-3	graduate students through university affiliations
10-15	undergraduate students employed during summer months
10-20	industry scientific and technical persons involved in collaborative research studies

MAJOR FACILITIES AND EQUIPMENT

- phytotron
- pilot-scale food processing plant
- controlled-atmosphere cold storage facilities
- animal handling facilities
- scanning electron microscope
- science library

Kentville Research Station

Agriculture Canada



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative work
- contracts from companies
- contracts to companies
- temporary transfer of company staff to laboratories (collaborative projects)
- use of facilities (collaborative projects)

Actively seeking:

All of the above plus:

- licensing agreements
- temporary transfer of staff to companies

Industry sector contacts to date:

- food processors
- fertiiizer manufacturers
- pesticide manufacturers
- food packaging manufacturers/suppliers
- pharmaceutical manufacturers
- machinery manufacturers
- consulting firms

AFFILIATION WITH OTHER ORGANIZATIONS

The Kentville Research Station and its affiliated Nappan Experimental Farm are component establishments of the Research Branch of Agriculture Canada, which maintains a network of laboratories and support facilities across Canada in support of the national agricultural sector and its related supply side and food industries.

Mount Saint Vincent University

166 Bedford Highway
Halifax, Nova Scotia
B3M 2J6

Tel: (902) 443-4450
Fax: (902) 445-3960

OVERVIEW

Contacts:

Dr. Reginald C. Stuart
Dean, Humanities and Sciences
(902) 443-4450, Ext. 138

Dr. Wayne Ingalls
Assistant to the President for Research and Information Services
(902) 443-4450 Ext. 296

Date established: 1873 (Academy);
1925 (College);
1966 (University)

Mandate:

- To provide broad undergraduate programs in liberal arts and science, and selected graduate and professional education oriented to the needs of women in contemporary society.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- biology
- chemistry
- computer studies
- mathematics
- food and nutrition

Professional and technical staff:

25 scientists and engineers
4 technicians and technical specialists
7 student research assistants (casual)

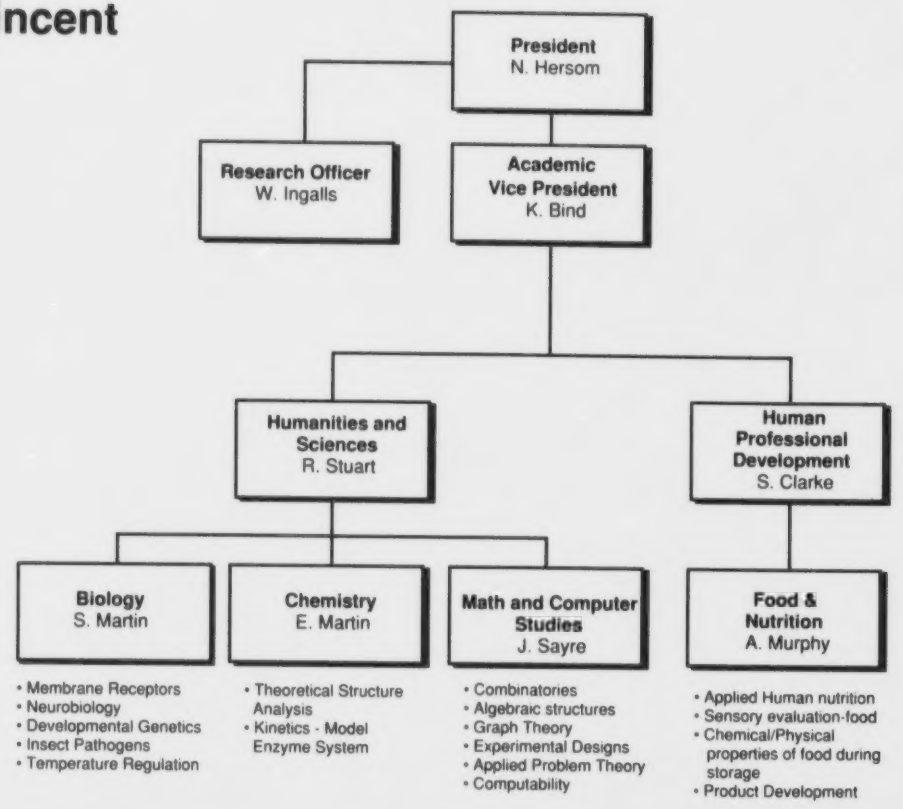
MAJOR FACILITIES AND EQUIPMENT

- food science research facilities
- sensory evaluation facilities
- cook-chill research equipment
- Canadian nutrient file - data base
- High pressure liquid chromatography

MAJOR PROGRAMS AND SERVICES

- Advanced office automation centre

Mount Saint Vincent University



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects

Actively seeking:

- informal interactions
- collaborative projects

Industry sector contacts to date:

- fisheries
- agriculture
- food
- biotechnology

AFFILIATION WITH OTHER ORGANIZATIONS

Mount St. Vincent University has a cooperative agreement with Dalhousie University and is associated with the following:

- the Canadian Institute of Food Science and Technology
- the Canadian Dietetic Association
- the National Institute of Nutrition
- the Institute of Food Technology
- the Association of Standard Testing Materials

National Research Council

See:

- **Atlantic Research Laboratory**
- **Government Programs: Industrial Research Assistance Program (IRAP)**

Nova Scotia Agricultural College

P.O. Box 550
Truro, Nova Scotia
B2N 5E3

Tel: (902) 895-1571
Fax: (902) 893-4601

OVERVIEW

Location:

Village of Bible Hill (near Truro)

Date established: 1905

Contact:

Mr. A. Dale Ells
Dean, Vocational and Technical Education
(902) 895-1571 Ext. 235

Mandate:

- To provide education and research services to advance the agricultural and food industries. Special emphasis is given to knowledge and techniques that can be applied to the Atlantic Region of Canada.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- soil science
- food safety
- plant biotechnology
- new crop development and cultivar evaluation
- plant protection
- agricultural engineering
- animal nutrition
- animal production systems
- environmental biology
- farm management and marketing

Number of professional and technical staff:

70	scientists and engineers
25	technicians and technical specialists
3	guest scientists
10	graduate students
4	adjunct professors from other research organizations

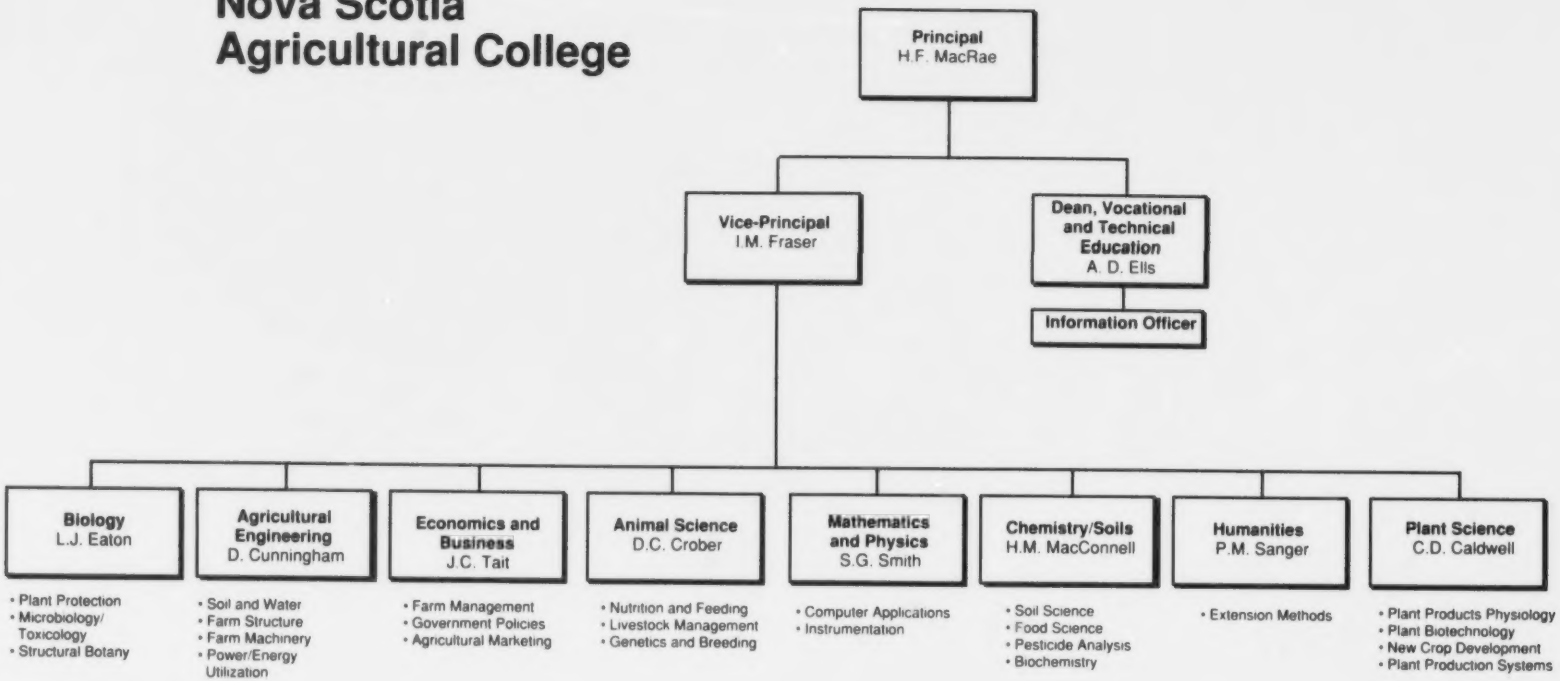
MAJOR FACILITIES AND EQUIPMENT

- college farm with seven animal units (poultry, dairy, beef, sheep, swine, fur and equine)
- field plot land and support services
- greenhouses and growth chambers
- hybridoma lab

MAJOR PROGRAMS AND SERVICES

- ultra centrifuge
- auto analyzer
- amino acid analyzer
- gas liquid chromatography
- high pressure liquid chromatography

Nova Scotia Agricultural College



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- contracts from companies
- contracts from government
- technical services
- use of facilities

Industry sector contacts to date:

- farming
- agribusiness
- food
- biotechnology

Actively seeking:

All of the above plus:

- licensing agreements
- contracts to companies
- consulting services
- temporary transfer of staff to companies
- temporary transfer of company staff to laboratory

AFFILIATION WITH OTHER ORGANIZATIONS

Founding partner:

- the Atlantic Institute of Biotechnology
- the Nova Scotia Blueberry Institute
- the Nova Scotia Fur Institute
- the Nova Scotia Soils Institute
- the Poultry Research Institute

Nova Scotia Agricultural College:

- has an agreement of cooperation with the Nova Scotia Research Foundation
- has linkages with the Agriculture Canada Research Branch.

Other:

Approximately 115 separate research projects each year funded by:

- Nova Scotia Department of Agriculture and Marketing Grant
- Agriculture and Livestock Feeds Initiative (ALFI) Program
- Natural Sciences and Engineering Research Council (NSERC)
- Agricultural Research Institute
- Agriculture and Food Development Agreements (AFDA)
- private company grants
- contracts with private and public agencies

Nova Scotia CAD/CAM Centre

1360 Barrington Street
P.O. Box 1000
Halifax, Nova Scotia
B3J 2X4

Tel: (902) 420-7764
Telex: 019-215-66
Fax: (902) 422-8380

OVERVIEW

Location:

Technical University of Nova Scotia campus

Date established: April, 1983

Contact:

Leigh Beauchamp
Manager, Marketing
(902) 420-7764

Mandate:

- To assist provincial manufacturers and consulting engineers to develop, design and utilize CAD/CAM applications.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- finite element analysis (FE)
- data exchange standards
- integration of CAD, CAM, FE and computer-aided-engineering (CAE)
- novel applications of CAD and CAM

Number of professional and technical staff:

5 engineers
3 guest scientists
6 graduate students
1 Shad Valley summer student

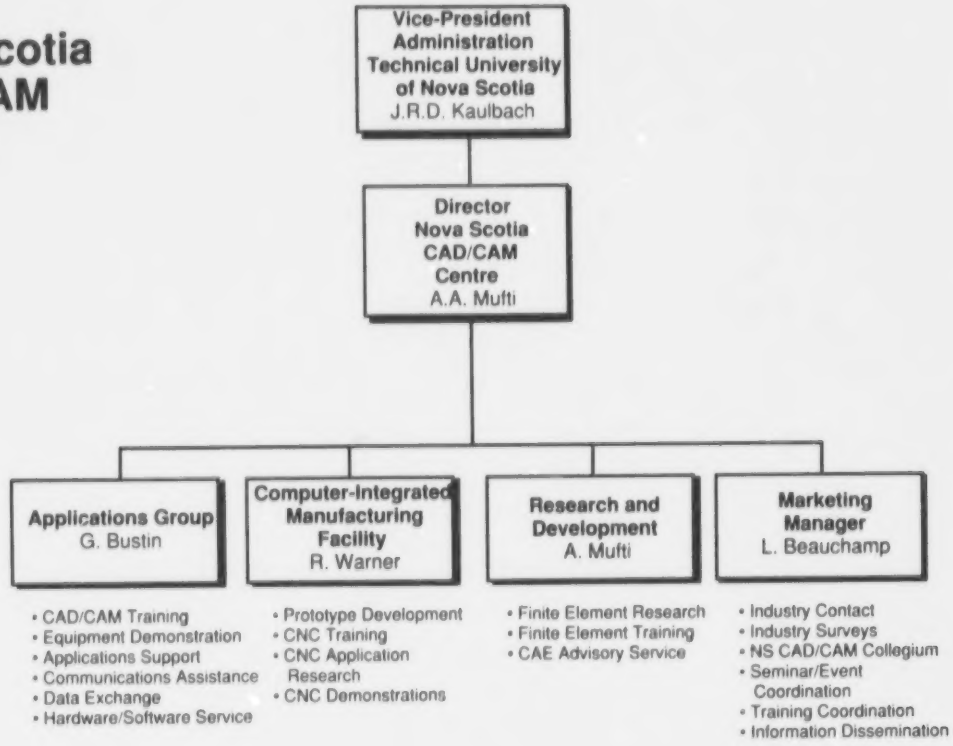
MAJOR FACILITIES AND EQUIPMENT

- CYBER 932-11 NOS/VE
- VAX 780
- PRIME 750
- Library of Engineering Application Software (CYBER and PRIME) includes ICEMDDN, Medusa and FE
- Tieline - high speed link to CYBERNET Engineering Service Bureau application software in Toronto
- Mori-Seiki MV Junior 3-axes CNC milling machine
- Mori-Seiki SL-25 CNC lathe
- Easymill-3 2 1/2 axes CNC milling machine (for training purposes)
- Tektronix terminals (1-4115, 9-4109's, 1-4107 and 1 4114)
- 15 IMB-AT clones
- plotters: Zeta 8-11"w and Zeta 836-36" w/8 pens

MAJOR PROGRAMS AND SERVICES

- system selection consultation
- technology information service
- on-the-job problem solving
- CAM, CAD, FE and CAE consultation
- technical content of proposals, business plans, etc.
- market information
- seminar and public lecture planning and notification
- access to papers, trade magazines, videos, manuals, brochures and information handouts on a range of CAD/CAM, FE, CAE and data communication topics

Nova Scotia CAD/CAM Centre



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- consulting services
- contracts from companies
- contracts to companies
- contracts from government
- industry training programs
- provision of advice and information
- technical services
- use of facilities

Industry sector contacts to date:

- engineering consultants
- advanced ceramics and materials
- plastics
- aerospace
- marine and naval architecture
- computer hardware and software vendors
- architectural
- manufacturers

Actively seeking:

all of the above plus:

- collaborative projects
- temporary transfer of staff to companies
- temporary transfer of company staff to the Centre

AFFILIATION WITH OTHER ORGANIZATIONS

Members:

- Society of Manufacturing Engineers
- Nova Scotia CAD/CAM Collegium
- National Agency for Finite Element Methods and Standards in the United Kingdom
- Halifax Board of Trade
- Canadian Network of Advanced Manufacturing Research

Nova Scotia CAD/CAM Centre:

- Has a contribution agreement with the National Research Council Industrial Research Assistance Program (IRAP).
- Is a Canadian representative on the International Standards Organization Committee on Data Exchange Standards.
- Has working relationships with other CAD/CAM centres in Nova Scotia .
- Has access to CAD/CAM, robotics, industrial, computer science and civil engineering expertise within the Technical University of Nova Scotia.

Nova Scotia Research Foundation Corporation

P.O. Box 790
Dartmouth, Nova Scotia
B2Y 3Z7

Tel: (902) 424-8670
Telex: 019-22719
Fax: (902) 465-7385/424-4679

OVERVIEW

Location:

101 Research Drive, Woodside Industrial Park, Dartmouth

Date established: 1946

Contact:

Dr. D.E.T. Bidgood
Vice President, Applied Science
(902) 424-8670

Mandate:

- To use science and technology to assist in the economic development of Nova Scotia. The Corporation pursues two main goals - assistance to industry in the solution of today's technical problems and product/process innovation in anticipation of tomorrow's opportunities.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- analytical and environmental chemistry
- biology
- coal and mineral technology
- geophysics
- materials
- new product development
- project engineering

Number of professional and technical staff:

45 scientists and engineers
45 technicians and technical specialists

Specific areas of research and development:

Biology:

- symbiotic plant-microbe interactions - mycorrhizal fungi
- plant tissue culture
- fish freshness test development

Coal and mineral technology:

- process development and economic studies
- coal liquification
- spray testing and rheology studies on coal-liquid fuels
- mineral utilization and industrial waste management

Geophysics:

- geophysical equipment development

Materials:

- ceramics
- corrosion

New product development:

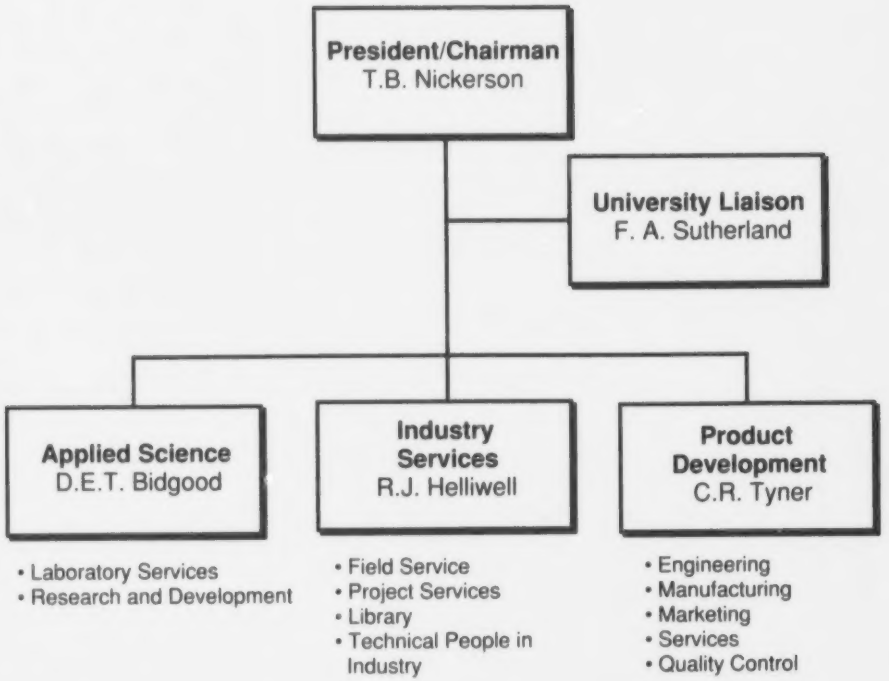
- engineering
- manufacturing
- marketing
- mechanical and electronic engineering and design assistance
- CAD/CAM familiarization

Equipment/Export sales

- diving life-support equipment
- geophysical marine equipment
- underwater instrumentation
- magnetically coupled "zero leakage" blowers and pumps

Accident reconstruction

Nova Scotia Research Foundation Corporation



MAJOR FACILITIES AND EQUIPMENT

- 5,000 square foot multi-purpose pilot plant
- 5,000 square foot Environmental Test Centre
- micro-computer based CAD systems and a multi-terminal minicomputer CAD/CAM system
- CNC horizontal turning centre and a vertical mill
- 220 KIPS material testing machine
- 20 KIPS tensile and fatigue testing machine
- glassblowing shop
- gas and liquid chromatography
- atomic absorption spectroscopy
- ultraviolet visible and infra-red spectroscopy
- C, H, N analyser
- spray test facility
- controlled environment rooms
- technical library

MAJOR PROGRAMS AND SERVICES

Biology:

- microbiological analysis
- quality and sanitation surveys of food handling procedures

Materials:

- mechanical and metallurgical testing
- welding procedure qualification
- failure analysis
- corrosion analysis

Geophysics:

- marine and ground geophysical surveys
- borehole geophysical logging
- data compilation, processing and interpretation

Analytical and environmental chemistry:

- lube oil analysis
- characterization of metals and organic mixtures
- pressure-treated wood quality control
- monitoring asbestos removal
- indoor air-quality monitoring
- environmental monitoring
- fish freshness analysis
- glassblowing

Field Service:

- National Research Council's Industrial Research Assistance Program (IRAP)
  - technical information/literature searches
  - in-plant problem solving
  - technology transfer/acquisition
  - state-of-the-art technology searches for the Canada Patents Office
  - access to foreign technology

Technical People in Industry Program (ACOA funded):

- financial support for new employment to industry engaged in new technical activities

Project Services:

- technical/market analysis
- bio-resource machine applications engineering
- mathematics and computer applications

Library:

- computer database searches
- technical searches

TECHNOLOGY TRANSFER ACTIVITES

Current activities:

- client visits - 1700 visits to 600 industrial clients annually
- licensing agreements - product sales of $ 750,000 annually
- contracts from companies - total 45% of contract revenue
- contracts from government -total 50% of contract revenue
- contracts to companies
- collaborative projects
- technical services - over 6000 assignments annually including 3000 technical inquiries
- temporary transfer of staff to companies
- use of facilities
- venture engineering

Actively seeking:

All of the above.

Industry sector contacts to date:

- fish harvesting and processing
- agriculture
- forestry
- aquaculture
- food and beverage
- engineering consulting
- medical device
- instrument manufacturing
- marine consultants and laboratories
- electronics manufacturing
- metal fabrication
- mining and mineral processing
- woodworking
- oil and gas refineries
- advanced ceramics

AFFILIATION WITH OTHER ORGANIZATIONS

Collaborative activites with the following (member or founding member):

- Association of Provincial Research Organizations (APRO)
- Applied Microelectronics Institute
- Atlantic Institute of Biotechnology
- SPECTRUM Technologies (Consortium)

Contractual arrangements:

- NRC - IRAP Field Service
- ARL/NRC - ceramics research and development
- Atlantic Farm Mechanization Institute (AFMI)

Intermediary:

- Canada Patent Office – technology searches
- Canadian Industrial Innovation Centre - Inventors Assistance Program

Nova Scotia Research Foundation Corporation has access to a range of databases and networks such as:

- CAN/OLE
- CCINFO
- DIALOG
- INFO GLOBE
- NOVATRON
- ORBIT
- QL SYTEMS LIMITED
- STN INTERNATIONAL
- WILSONLINE
- ISD

St. Francis Xavier University

Antigonish, Nova Scotia
B2G 1C0

Tel: (902) 867-2442
Fax: (902) 867-2177

OVERVIEW

Contact:

Dr. John J. MacDonald
Executive Vice President
(902) 867-2443

Date established: 1853

Mandate:

- To provide programs to students at the undergraduate level and offer Baccalaureate degrees in Arts and Science and a wide range of pre-professional programs.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- biology
- chemistry
- engineering
- mathematics
- computing science
- nutrition
- physics

Number of professional and technical staff:

51 scientists and engineers (5 part-time)
20 technicians and technical specialists
3 guest scientists
3 graduate students

MAJOR FACILITIES AND EQUIPMENT

- infrared spectroscopy
- mass spectroscopy
- nuclear magnetic resonance spectroscopy
- fluorescence spectroscopy
- infrared microscope
- high performance liquid chromatography
- polarography
- differential scanning calorimeter

TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- consulting services
- contracts from government

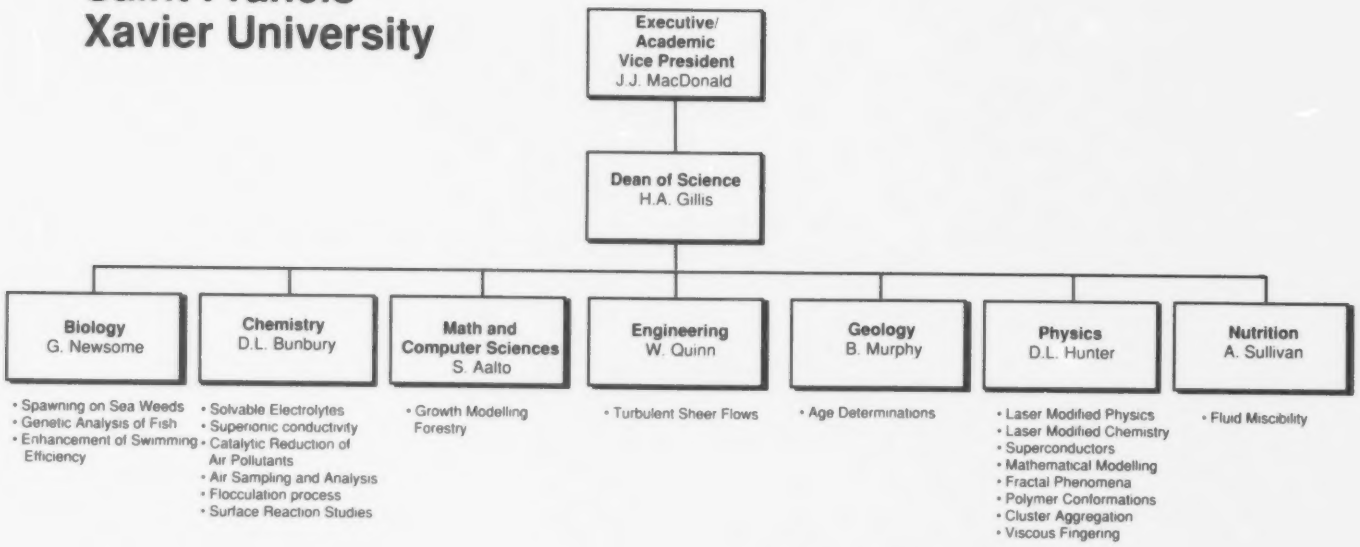
Actively seeking:

- informal interactions
- collaborative projects
- consulting services

Industry sector contacts to date:

- pulp and paper
- dairy products
- forestry
- exploration geology
- coal
- herring roe fishery
- oil

Saint Francis Xavier University



Saint Mary's University

Robie Street
Halifax, Nova Scotia
B3H 3C3

Tel: (902) 420-5400
Fax: (902) 420-5561

OVERVIEW

Contact:

Dr. William Jones
Dean of Science
(902) 420-5493

Date established: 1802

Mandate:

- To promote and disseminate learning and knowledge through the provision of full undergraduate programs in the sciences, and graduate programs in astronomy and psychology.
- To provide an environment in which research by faculty and students can thrive.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- astronomy
- biology
- chemistry
- engineering
- finance/management
- geology
- mathematics
- computing science
- physics
- psychology

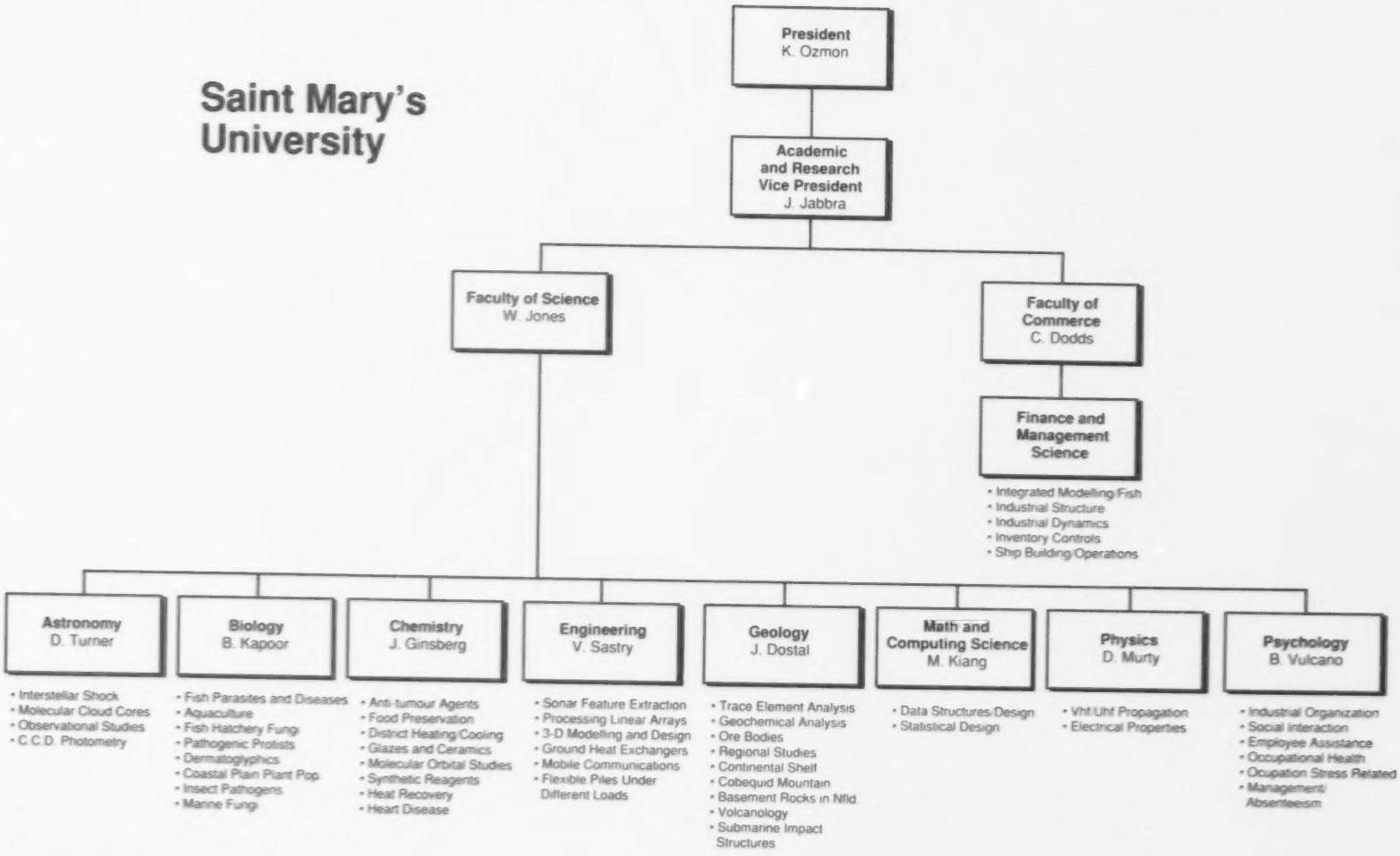
Number of professional and technical staff:

55 scientists and engineers
9 technicians and technical specialists
2 guest scientists
20 graduate students
7 NSERC undergraduate student research awards

MAJOR FACILITIES AND EQUIPMENT

- regional x-ray fluorescence analytical unit (major and trace elements)
- surface film balance
- differential scanning calorimeter
- electron microscope (EM-200)
- high performance liquid chromatography
- nuclear magnetic resonance spectrometry
- atomic absorption spectrometry
- infra-red spectrometry
- reflecting telescope
- astrophotometer (semi automated)
- microdensitometer
- neutron activation facility
- geological sample preparation facility

Saint Mary's University



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- consulting services
- contracts to companies
- contracts from government
- technical services
- use of facilities

Actively seeking:

- all of the above

Industry sector contacts to date:

- food
- energy utilities
- petroleum
- ceramics
- communications
- construction engineering
- defence
- biochemical/pharmaceutical

AFFILIATIONS WITH OTHER ORGANIZATIONS

Collaborative projects:

- between private sector, provincial, and national research laboratories eg. the National Research Council, Atomic Energy Canada Limited, Centre de Recherche Industrielle du Quebec, Ontario Research Foundation.
- with the Department of Energy, Mines and Resources, International Energy Agency, and the Nova Scotia Department of Mines and Energy.

Saint Mary's University has access to the United States Department of Energy Data Base and CISTI's CAN/OLE system.

Technical University of Nova Scotia

1360 Barrington Street
P.O. Box 1000
Halifax, Nova Scotia
B3J 2X4

Tel: (902) 420-7500
Fax: (902) 420-7551

OVERVIEW

Contact:

Dr. Peter Adams
President
(902) 420-7644

Date established: 1907

Mandate:

- To provide in cooperation with eight other associated universities, programs of excellence in engineering, architecture and computer science.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- agricultural waste
- membrane separation
- fluidized bed combustion
- geotechnical engineering
- waste resources and environmental engineering
- fibre optics
- communications
- erosion/corrosion protection
- food process engineering
- production/manufacturing systems
- mechanical systems and controls
- coal mine support
- composite materials
- analysis of mineral samples
- software engineering

Number of professional and technical staff:

96 scientists and engineers
21 technicians and technical specialists
217 graduate students

Specific areas of research and development:

Agricultural engineering

- Soil Conservation
- Agricultural waste management
- Food engineering
- Soil tillage studies
- Automation of fruit and vegetable harvesting

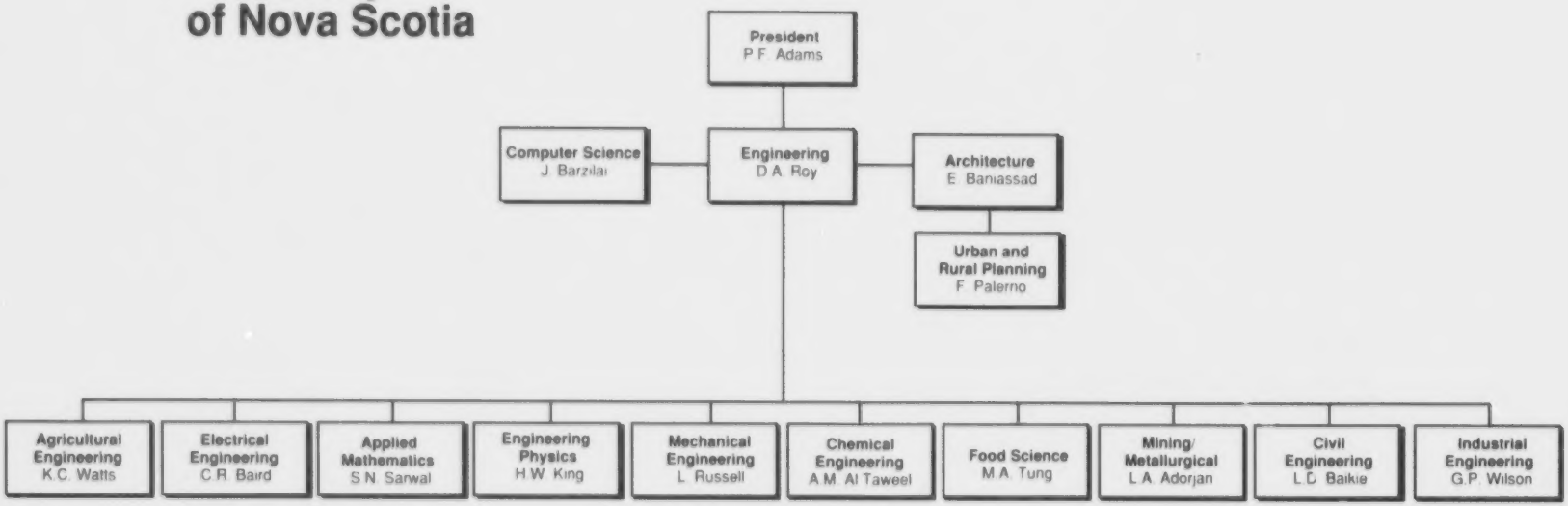
Applied mathematics

- Solid mechanics
- Fluid mechanics
- Computer architectures
- Statistics
- Ergodic theory

Chemical engineering

- Membrane separation
- Process control
- Fluidized bed combustion
- Dust explosions
- Biomedical engineering
- Heat and mass transfer
- Mathematical model simplification
- Processing of energy resources
- Development of alternative fuels
- Wood combustion
- Flame front propagation
- Gas-liquid contacting
- Nonintrusive measurement

Technical University of Nova Scotia



Civil engineering

- Structural engineering
- Geotechnical engineering
- Masonry
- Composite materials
- Fracture mechanics
- Water resources and environmental engineering
- Hydraulics
- Highway and transportation engineering
- Reinforced and prestressed concrete
- Computer-aided engineering

Centre for water resource studies

- Problems in water resources relating to Nova Scotia and Atlantic Provinces

Electrical engineering

- Fibre optics
- Communications
- Control systems
- Biomedical instrumentation
- Machine theory
- Systolic architecture
- Power systems
- High voltage
- Digital signal processing
- Computer vision

Biomedical Engineering institute

- Instrumentation
- Signal and image processing
- Computer vision
- Medical informatics
- Biomagnetics
- Gait analysis
- Medical devices
- Rehabilitation engineering
- Physiological control systems
- Software development
- Cardiovascular modelling

Engineering physics

- X-ray diffractometry
- Crystallography data bank
- Erosion/corrosion protection
- Superconducting ceramics
- Plasma sprayed coatings
- Scanning tunneling microscopy

Canadian Institute of Fisheries Technology

- Fish process engineering
- Food biochemistry
- Rheology
- Food process engineering
- Fats and oils
- Product development

Industrial engineering

- Work measurement and production standards
- Production/manufacturing systems
- Operations research
  - strategic planning models
  - transportation and vehicle scheduling models
  - large scale mathematical programming models
- Industrial ergonomics
  - work space design
  - work motivation

Mechanical engineering

- Design methodology
- Mechanical systems and controls
- Energy conversion systems
  - improved efficiency and emission control
- Naval architecture and marine vessel design

Mining and metallurgical engineering

- Mine mechanization
- Geology
- Solid/liquid separation
- Reservoir engineering
- Welding metallurgy
- Fracture mechanics
- Fatigue crack growth
- Composite materials
- Cavitation erosion
- Bearing materials
- Electronic materials
- Coal mine support
- Mineral processing
- Petroleum drilling fluids
- Oil shale treatment
- Slag addition to cements
- Chemical desulphurization of coal
- Corrosion of superalloy materials
- Wear mechanisms in rail steels
- Ceramic coatings
- Metal textures

Minerals engineering centre

- Sample preparation
- Physical and chemical analytical methods
- Mineral processing test work

School of computer science

- Analysis of algorithms
- CAD/CAM
- Computer communications
- Computer vision
- Distributed systems
- Numerical optimization
- Programming language design
- Robotics
- VLSI design
- Artificial intelligence
- Computer architecture

- Computer graphics
- Data base systems
- Expert systems
- Parallel processing
- Pattern recognition
- Software engineering

MAJOR FACILITIES AND EQUIPMENT

- agricultural instrumentation
- laser doppler anemometer
- steel structures laboratory
- timber engineering
- water resources
- communications laboratory
- signal processing laboratory
- food engineering pilot plant
- modest towing tank
- circulating fluidized bed flume
- mineral processing test laboratory
- electron microscopes
- sample preparation facilities

MAJOR PROGRAMS AND SERVICES

- advanced electronics design
- combustion testing services
- mineral processing services
- experimental processing, evaluation and analysis of food and trace constituents

TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- contracts from companies
- contracts from government
- licensing agreements
- technical services
- temporary transfer of staff to companies
- use of facilities

Actively seeking:

- contracts from companies
- collaborative projects
- technical services
- use of facilities

Industry sector contacts to date:

- food and beverage
- geotechnical and environmental
- raw material producers
- communications
- seafood processing
- pharmaceutical
- aircraft and marine
- mineral processing
- coal preparation

AFFILIATION WITH OTHER ORGANIZATIONS

Joint owner:

- Advanced Materials Engineering Centre
- Applied Microelectronics Institute

Joint participant:

- Atlantic Institute of Biotechnology

Collaborative project:

- Canadian University - Industry Council on Advanced Ceramics

Université Sainte-Anne

Point-de-l'Eglise
Nouvelle-Ecosse
B0W 1M0

Tel: (902) 769-2114
Fax: (902) 769-2930

OVERVIEW

Contact:

Mr. Gerald Comeau
Business Researcher
(902) 769-2114

Date established: 1890

Mandate:

- To provide higher education and research in French to Nova Scotia's francophone communities.
- To contribute to the economic development of francophone regions in Nova Scotia.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- marine bioscience
- fur animal science
- wind energy
- fresh water pollution

Number of professional and technical staff:

4 scientists and engineers
2 technicians and technical specialists

MAJOR FACILITIES AND EQUIPMENT

- gas chromatography
- atomic absorption spectroscopy

TECHNOLOGY TRANSFER ACTIVITES

Current activites:

- informal interactions

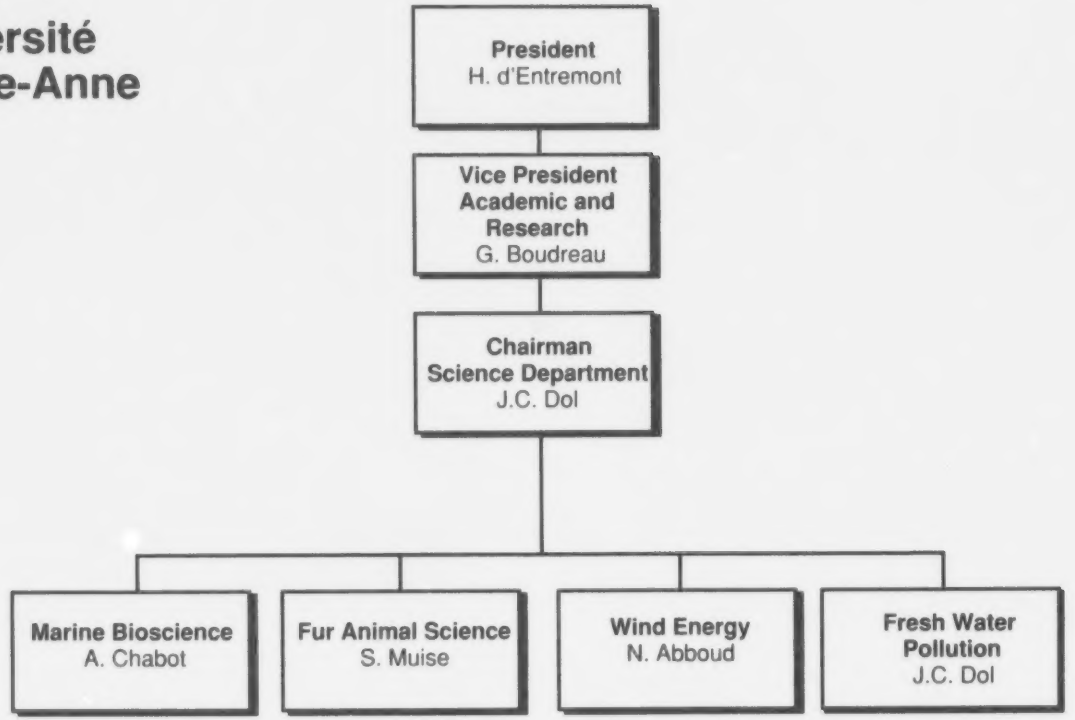
Actively seeking:

- informal interactions
- consulting services
- collaborative projects
- contracts from companies

Industry sector contacts to date:

- fur producers associations
- hospitals
- marine plant producers

Université Sainte-Anne



AFFILIATION WITH OTHER ORGANIZATIONS

Collaborative projects:

- Hôpital Fernand Widel à Paris - neurotoxicologie
- marine plant production in Morocco

University College of Cape Breton

P.O. Box 5300
Sydney, N.S.
B1P 6L2

Tel: (902) 539-5300
Fax: (902) 562-0119

OVERVIEW

Location:

Highway Trunk 4, between Sydney and Airport

Date established: 1974

Contact:

John E. Terry
Vice President, Community Services
(902) 539-5300 Ext. 149/151

Mandate:

- To offer programs and conduct research in liberal arts, sciences, technologies and technical skills.
- To develop specific programs for particular clientele.
- To assist existing and new enterprises through technology transfer.
- To preserve and promote our cultural heritage.
- To collaborate with other agencies in serving our community.

ACTIVITIES AND ORGANIZATION

Main areas of research and development:

- biology
- chemistry
- engineering
- geology
- physics
- resource industries (agriculture, fisheries and forestry)
- fuels (energy)

Number of professional and technical staff:

28 scientists and engineers
12 technicians and technical specialists
2 guest scientists

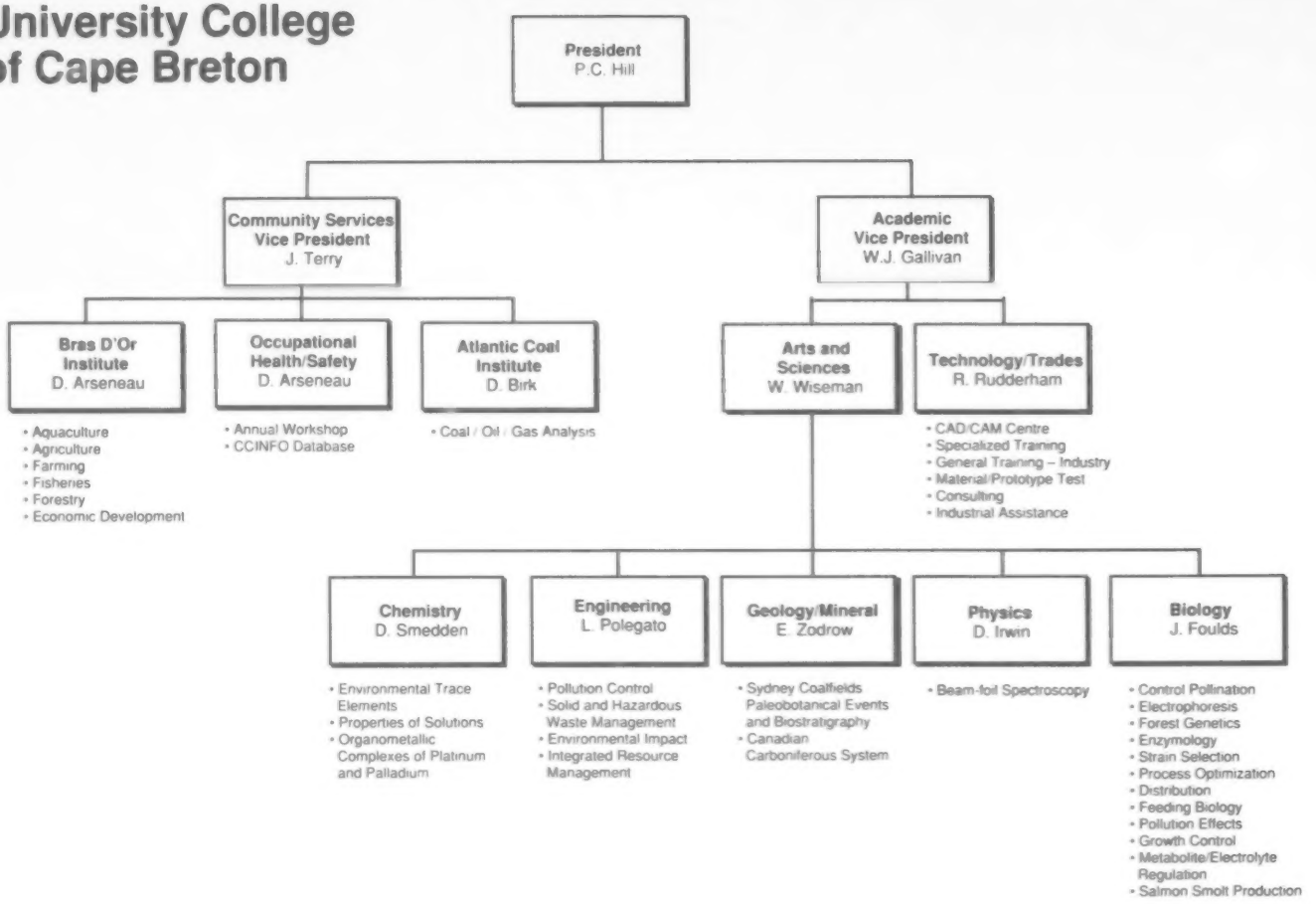
MAJOR FACILITIES AND EQUIPMENT

- CAD/CAM Centre
- Bras d'Or Resource Centre
- Centre for Occupational Health and Safety
- Centre of Community Economic Development
- graphite furnaces
- total carbon analyzer
- elemental analyzer
- gas chromatography
- high pressure liquid chromatography
- atomic absorption spectroscopy
- fluorescence spectrometry
- flame atomic absorption spectroscopy
- graphite furnace atomic absorption

MAJOR PROGRAMS AND SERVICES

- fuel tests
- scanning electron microscopy
- computer image analysis
- automatic particle recognition
- computer services applied to coal and oil resources
- special training sessions for industry
- satellite conferences on science and technology (12-15 per year)

University College of Cape Breton



TECHNOLOGY TRANSFER ACTIVITIES

Current activities:

- informal interactions
- collaborative projects
- consulting services
- contracts from companies
- contracts to companies
- contracts from government
- technical services
- temporary transfer of staff to companies

Actively seeking:

- all of the above

Industry sector contacts to date:

- agriculture
- coal
- communications
- construction
- fisheries
- forestry
- manufacturing
- petroleum
- steel

AFFILIATION WITH OTHER ORGANIZATIONS

University College of Cape Breton:

- has a formal agreement with the Nova Scotia Research Foundation
- is a member of the Nova Scotia CAD/CAM Collegium
- has access to national/international databases available to local industries and consultants.

Index to Research and Development Activities

This index provides cross-referencing by technical area to the institutions. It is intended to assist in identifying where in the province's institutions a particular technical expertise may be found.

It is based on the information provided in the individual institutions' profiles. Because the institutions themselves are so varied in size and purpose, the information represents varying levels of detail. In particular, the larger institutions were obliged to restrict the level of detail in this directory for the sake of being concise. While the index gives a good indication of areas of research and development, it is not fully comprehensive at the detailed level. If a particular subject is not found in the index, it does not necessarily mean research and development in that area is not being performed. Readers are advised to call the institutions and check directly with them.

Research Activities / Institutions	Acadia University	Advanced Materials Engineering Centre	Atlantic Institute of Biotechnology	Applied Microelectronics Institute	Atlantic Geoscience Centre	Atlantic Research Laboratory	College of Geographic Sciences	Dalhousie University	Defence Research Establishment Atlantic	Department of Fisheries and Oceans	Kentville Agricultural Station	Mount Saint Vincent University	Nova Scotia Agricultural College	Nova Scotia CAD/CAM Centre	Nova Scotia Research Foundation	Saint Francis Xavier University	Saint Mary's University	Technical University of Nova Scotia	Université Sainte-Anne	University College of Cape Breton
Accident reconstruction														•						
Acoustics (surveillance)									•											
Acoustics (underwater)								•	•											
Agricultural waste			•										•							
Agricultural engineering													•					•		
Agricultural technol. (sustainable)										•			•							
Agriculture	•		•					•		•			•							•
Air pollutants								•						•	•					
Air-quality (indoor)														•						
Anadromous fisheries								•												
Analytical chemistry					•			•						•						•
Analytical (nuclear)								•								•				
Animal nutrition													•							
Animal production systems													•							
Animal science													•							
Applied science			•			•							•	•						
Aquaculture	•		•			•		•		•				•		•				•
Aquaculture fisheries	•		•					•		•										
Aquaculture oceanography								•												
Aquatic invertebrates & ecology								•												•
Architecture (naval)									•									•		
Archiving (geological samples)				•																
Artificial intelligence	•							•	•									•		
Asbestos detection														•						
Astronomy																•				
Atmospheric science								•												
Basin analysis				•				•												
Benthic fisheries								•		•										
Bioadhesives (dental)								•												
Biochemistry (antibiotics)								•												
Biochemistry (food)			•										•					•		
Biochemistry (of heart disease)								•								•				
Biocompatability Testing (dental)								•												
Biological chemistry					•			•		•										•
Biological oceanography								•		•										
Biological sciences			•		•			•		•			•							
Biology	•		•					•			•		•	•	•	•				•
Antibiotics (biochemistry)								•												
Aquaculture	•		•		•			•		•						•				
Dermatoglyphics																•				
Developmental								•												
Enhancement of swimming efficiency															•					
Entomology								•												
Environmental								•					•	•						
Fisheries	•		•					•		•										
Fish freshness			•		•									•						
Fish hatchery fungi																•				
Fish parasites and diseases								•								•				
Genetic analysis of fish stocks								•							•					
Growth physiology in vertebrates								•												•
Insect pathogens								•			•									
Insect pathogens and fungi																•				
Limnology								•												
Marine mammal								•		•										

Research Activities	Institutions	• Acadia University	• Advanced Materials Engineering Centre	• Atlantic Institute of Biotechnology	• Applied Microelectronics Institute	• Atlantic Geoscience Centre	• Atlantic Research Laboratory	• College of Geographic Sciences	• Dalhousie University	• Defence Research Establishment Atlantic	• Department of Fisheries and Oceans	• Kentville Agricultural Station	• Mount Saint Vincent University	• Nova Scotia Agricultural College	• Nova Scotia CAD/CAM Centre	• Nova Scotia Research Foundation	• Saint Francis Xavier University	• Saint Mary's University	• Technical University of Nova Scotia	• Université Sainte-Anne	• University College of Cape Breton
Marine microbiology									•												
Membrane receptors									•				•								
N.S. coastal plain plant populations									•									•			
Pathogenic protists									•												
Plant tissue									•					•		•		•			
Spawning on sea weeds																	•				
Symbiotic plant-microbe interaction																•					
Temperature regulation									•				•								
Biomagnetics									•										•		
Biomaterials (dental)									•												
Biomedical			•						•												
Biomedical engineering									•										•		
Biosciences (marine)							•		•		•									•	
Biostratigraphy						•															
Biotechnology			•				•		•												
Biotechnology (plant)			•						•			•		•		•					
Biotechnology (genetic)			•				•		•												
Botany (structural)									•					•							
CAD, CAM, FE & CAE (integration of)		•		•					•	•					•	•					•
Cardiovascular modelling									•										•		
Cartography								•													
Ceramics	•	•					•		•							•		•	•		
Chemical engineering																•			•		
Chemical sciences							•		•		•										
Chemistry	•								•		•			•		•	•	•			•
Analytical							•			•	•					•		•			•
Anti-fungals	•						•										•				
Anti-tumour agents									•									•			
Anti-virals	•						•		•												
Automated chemical analysis									•												
Biochemistry of heart disease									•									•			
Biochemistry (food)																			•		
Biological							•		•		•										•
Biosynthesis	•						•		•												
Electrochemistry	•								•									•			
Environmental	•								•							•					
Environmental air sampling and analysis									•							•	•				
Enzymology	•								•												
Flocculation process									•								•				
Gas kinetics	•								•									•			
Geological									•		•		•					•			•
Heating and cooling systems									•									•			
Heat recovery																		•			
Marine							•		•		•										
Kinetics enzyme model									•				•								
Organic							•		•							•		•			•
Physical									•									•			•
Polymers	•								•												
Radioactive waste management									•												
Soils									•			•		•							
Soluble electrolytes									•								•				
Structure analysis							•		•				•					•			
Superionic conductivity									•								•				
Surface reaction									•								•	•			

Research Activities	Institutions	• Acadia University	• Advanced Materials Engineering Centre	• Atlantic Institute of Biotechnology	• Applied Microelectronics Institute	• Atlantic Geoscience Centre	• Atlantic Research Laboratory	• College of Geographic Sciences	• Dalhousie University	• Defence Research Establishment Atlantic	• Department of Fisheries and Oceans	• Kentville Agricultural Station	• Mount Saint Vincent University	• Nova Scotia Agricultural College	• Nova Scotia CAD/CAM Centre	• Nova Scotia Research Foundation	• Saint Francis Xavier University	• Saint Mary's University	• Technical University of Nova Scotia	• Université Sainte-Anne	• University College of Cape Breton
Theoretical								•				•					•				
Civil engineering																	•	•			
Clinical evaluation (pharmaceutical)								•													
Coal								•												•	
Coal analysis																				•	
Coal mine support																		•			
Coal technology															•		•				
Coastal oceanography								•		•											
Coastal resource management								•		•											
Coastal zone management								•		•											
Coatings development		•																•			
Combustion (fluidized bed)																	•	•			
Combustion (wood)																		•			
Communications								•										•			
Communications (digital mobile)																	•				
Composite materials						•		•										•			
Composites processing		•				•															
Computer architecture																		•			
Computer communications								•										•			
Computer aided design		•		•										•	•			•		•	
Computer aided engineering														•							
Computer aided instruction	•							•													
Computer aided manufacturing		•												•	•			•		•	
Computer based technology								•													
Computer graphics	•						•	•									•	•			
Computer laser imaging								•													
Computer programming							•	•							•						
Computer systems									•												
Computer vision																		•			
Computing science	•							•					•			•	•	•			
Artificial intelligence	•							•	•									•			
Computability													•								
Database systems								•										•			
Data structures and design								•									•				
Distributed systems																		•			
Expert systems								•	•									•			
Image processing	•																•				
Numerical optimization								•										•			
Parallel processing								•										•			
Pattern recognition								•										•			
Programming language design								•										•			
Software engineering																		•			
Statistical design								•									•				
Conservation (geological samples)	•							•													
Control systems								•										•			
Corrosion protection						•		•							•						
Crop development			•									•		•							
Crop production and protection												•		•							
Crop improvement			•					•				•		•							
Crop nutrition												•		•							
Crop physiology								•				•		•							
Crystallography								•									•		•		
Cultivar evaluation														•							

Research Activities	Institutions	• Acadia University	• Advanced Materials Engineering Centre	• Atlantic Institute of Biotechnology	• Applied Microelectronics Institute	• Atlantic Geoscience Centre	• Atlantic Research Laboratory	• College of Geographic Sciences	• Dalhousie University	• Defence Research Establishment Atlantic	• Department of Fisheries and Oceans	• Kentville Agricultural Station	• Mount Saint Vincent University	• Nova Scotia Agricultural College	• Nova Scotia CAD/CAM Centre	• Nova Scotia Research Foundation	• Saint Francis Xavier University	• Saint Mary's University	• Technical University of Nova Scotia	• Université Sainte-Anne	• University College of Cape Breton
Data exchange standards														•							
Data management and planning									•	•	•										
Dental biomaterials									•	•											
Digital mobile communications																					
Digital signal processing				•					•								•				
Image processing		•							•	•											
Ecology		•							•												
Ecology (aquatic)						•			•	•											•
Ecology (forest)									•												
Ecology (habitat)									•		•										
Economic geology									•												
Economics									•								•				
Electrical engineering									•				•								
Electrochemistry		•							•								•				
Electronic devices				•					•						•						
Electronic instrument design					•				•						•						
Electronics				•											•						
Energy and fuels																					
Engineering		•							•				•		•	•	•				
Agricultural													•		•		•				•
Applied																					
Biomedical									•												
Chemical															•						
Civil																					
Electrical									•						•						
Environmental		•							•						•						•
Food process																					
Food science																					
Geotechnical																					
Industrial																					
Mechanical									•						•						
Metallurgical															•						
Mining																					
Physics																					
Software									•												
Structural																					
Turbulent sheer flows																					
Entomology									•												
Environmental analysis									•												
Environmental assessment									•												
Environmental biology									•												
Environmental chemistry		•				•			•				•		•		•				
Environmental engineering									•				•								
Environmental impact studies		•							•								•				•
Environmental management									•												
Environmental marine geology					•				•												
Environmental monitoring									•						•						
Environmental protection									•												
Environmental studies									•												•
Environmental testing									•				•		•						
Ergonomics (industrial)																					
Erosion protection																					
Expert systems		•							•												

Research Activities / Institutions	Acadia University	Advanced Materials Engineering Centre	Atlantic Institute of Biotechnology	Applied Microelectronics Institute	Atlantic Geoscience Centre	Atlantic Research Laboratory	College of Geographic Sciences	Dalhousie University	Defence Research Establishment Atlantic	Department of Fisheries and Oceans	Kentville Agricultural Station	Mount Saint Vincent University	Nova Scotia Agricultural College	Nova Scotia CAD/CAM Centre	Nova Scotia Research Foundation	Saint Francis Xavier University	Saint Mary's University	Technical University of Nova Scotia	Université Sainte-Anne	University College of Cape Breton
Export sales								•						•						
Fats and oils								•									•			
Farm machinery												•								
Farm management and marketing												•								
Fibre optics								•						•			•			
Finance								•								•				
Finite element analysis		•							•				•							
Fisheries								•		•										•
Anadromous								•		•										
Biology								•		•										
Benthic								•		•										
Climate and marine								•												
Freshwater								•		•										
Invertebrate								•		•										
Fish freshness			•			•								•						
Fish hatchery fungi																•				
Fish (larval survival)								•												
Fish (marine)								•		•										
Fish parasites and diseases								•		•						•				
Fish stocks (genetic analysis)								•		•					•					
Fluidized bed combustion																•	•			
Food biochemistry			•									•								
Food handling											•	•		•						
Food and nutrition											•									
Food preservation																•				
Food process engineering																				
Food product development											•			•						
Food research											•	•								
Food safety												•		•						
Food science	•											•								
Food science engineering																				
Food storage											•	•								
Food technology											•	•								
Forest ecology								•												
Forestry																				•
Forestry (growth modelling)															•					
Fresh water fisheries										•										
Fresh water pollution								•												
Fruit											•	•								
Fruit crops											•	•								
Fruit harvesting (automation)												•								
Fuels analysis														•						
Fuels (energy)																				•
Fur animal science												•								
Genetic biotechnology								•												
Genetics (developmental)								•			•									
Genetics improvement (fruit crops)											•									
Genetics (marine algae)						•		•												
Genetics (population)								•												
Geochemistry (marine)					•			•									•			
Geodynamic modelling					•			•									•			
Geographic information systems							•							•						
Geological mapping	•							•									•			

Research Activities	Institutions	Acadia University	Advanced Materials Engineering Centre	Atlantic Institute of Biotechnology	Applied Microelectronics Institute	Atlantic Geoscience Centre	Atlantic Research Laboratory	College of Geographic Sciences	Dalhousie University	Defence Research Establishment Atlantic	Department of Fisheries and Oceans	Kentville Agricultural Station	Mount Saint Vincent University	Nova Scotia Agricultural College	Nova Scotia CAD/CAM Centre	Nova Scotia Research Foundation	Saint Francis Xavier University	Saint Mary's University	Technical University of Nova Scotia	Université Sainte-Anne	University College of Cape Breton
Geology		•				•			•							•	•				•
Age determinations									•							•	•				
Basement rocks in Northern Nfld									•								•				
Carboniferous systems									•								•				•
Continental shelf									•								•				
Economic									•								•				
Environmental marine					•																
Geochemical analysis									•								•				
Igneous petrology		•							•								•				
Marine									•												
Metamorphic petrology		•							•								•				
Regional						•			•								•				
Structural		•							•								•				
Structural controls of ore bodies																					
Trace element analysis									•					•			•				
Geophysics									•						•		•				
Geophysics (marine)									•						•						
Geotechnical engineering																		•			
Glassblowing									•						•		•				
Glazes																	•				
Growth modelling (forestly)																•					
Habitat ecology									•												
Hardware (custom)				•						•											
Health (occupational)									•						•						
Heart disease (biochemistry)									•												•
Heating and cooling systems (district)																	•				
Heatpumps																	•				
Horticulture																					
Hydrocarbon separation (synth reagents)													•								
Hydrodynamics									•		•						•				
Hydrographic development																					
Hydrography										•											
Hydronautics (surface ships and subs)										•											
Petrology (igneous)		•							•		•										
Image processing																	•				
Industrial engineering																		•			
Industrial materials and processes							•											•			
Industrial mechanical mining															•						
Industry services																		•			
Informatics (medical)															•						
Insulation (high voltage)		•							•									•			
Invertebrates (aquatic)									•												•
Invertebrate fisheries									•												
Langmuir probes		•							•												
Laser imaging (computerized)									•												
Laser semiconductor interactions									•												
Limnology									•												
Lithospheric processes						•			•									•			
Lithostratigraphy						•			•									•			
Livestock management														•							
Lube oil															•						
Magnetic field and magnetism									•												
Magnetocardiography									•												
Management		•							•						•			•			

Research Activities	Institutions	• Acadia University	• Advanced Materials Engineering Centre	• Atlantic Institute of Biotechnology	• Applied Microelectronics Institute	• Atlantic Geoscience Centre	• Atlantic Research Laboratory	• College of Geographic Sciences	• Dalhousie University	• Defence Research Establishment Atlantic	• Department of Fisheries and Oceans	• Kentville Agricultural Station	• Mount Saint Vincent University	• Nova Scotia Agricultural College	• Nova Scotia CAD/CAM Centre	• Nova Scotia Research Foundation	• Saint Francis Xavier University	• Saint Mary's University	• Technical University of Nova Scotia	• Université Sainte-Anne	• University College of Cape Breton
Management (coastal resource)									•									•			
Management (environmental)									•												
Management (farm)														•							
Management (livestock)														•							
Management (natural)									•												
Management resource									•												
Manufacturing systems																			•		
Mapping								•										•			
Mapping (geological)		•							•												
Marine biosciences						•			•		•									•	
Marine chemistry						•			•		•										
Marine equipment development									•												
Marine geochemistry					•				•												
Marine geophysics									•						•						
Marine geology					•				•												
Marine geology (environmental)					•				•												
Marine fish									•		•										
Marine mammal biology									•		•										
Marine materials									•	•											
Marine microbiology									•												
Marine physics					•				•		•										
Marine plants						•															
Marine pollution									•												
Marine science						•			•												
Marketing (farm)														•							
Materials (testing and analysis)		•				•			•						•						
Material structures (advanced)		•																			
Mathematics									•	•			•	•			•	•	•		
Algebraic structures									•				•								
Applied									•	•								•	•		
Applied problem theory													•								
Combinatorics									•				•					•			
Ergodic theory									•										•		
Experimental designs									•				•								
Functional analysis									•												
Graph theory													•					•			
Information theory and retrieval									•												
Mechanics (fluid)																			•		
Mechanics (solid)																			•		
Number, operator, category theory									•												
Numerical analysis									•												
Statistics									•									•	•		
Time series analysis									•												
Measurement (non-intrusive)									•												
Mechanical engineering															•				•		
Mechanical instrument design					•										•						
Mechanical systems and controls															•				•		
Medical									•												
Medical devices									•						•				•		
Medical informatics									•										•		
Membrane separation									•										•		
Metallurgical engineering																			•		
Metrology											•										

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Microbiological analysis							•							•						
Microbiology							•					•								
Microbiology (marine)							•													
Microelectronics				•																
Micropalaeontology							•													
Microscopy (scanning tunnelling)							•									•				
Mineral analysis							•										•			
Mineral processing test work																	•			
Mineral technology														•						
Minerals							•									•			•	
Minerals engineering																•	•			
Mining Engineering																	•			
Molecular genetics					•															
Molecular orbital studies							•									•				
Natural history of Nova Scotia	•						•													
Naval architecture								•									•			
Neurobiology							•				•									
Nuclear Analytical Methods							•									•				
Nuclear magnetic resonance spectroscopy					•		•													
Nutrition	•						•				•				•					
Nutrition (animal)												•								
Occupational health and safety							•													
Ocean circulation							•		•										•	
Ocean productivity							•													
Oceanography							•		•											
Aquaculture oceanography							•													
Biological							•		•											
Climate and marine fisheries							•													
Coastal							•		•											
Larval fish survival							•													
Marine sediment and paleo-oceanography							•													
Ocean-atmosphere gas exchange							•													
Oil analysis																			•	
Sediment diagenesis							•													
Toxic phytoplankton culture							•													
Wind, wave and sediment interaction							•													
Oils and fats							•										•			
Oil spills and waste	•																			
Operations research																	•			
Optics (fibre)							•													
Parasites and diseases (fish)									•											
Particle physics (theoretical)							•									•				
Patient evaluation							•													
Pattern recognition (computer)																	•			
Pesticide analysis												•								
Petrology (metamorphic)	•						•									•				
Pharmaceutical (clinical evaluation)							•													
Physical rehabilitative technology							•													
Physical sciences									•											
Physics	•						•					•			•	•	•		•	
Amorphous materials							•													
Cluster aggregation															•					
Electrical properties of compounds							•									•				

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Electrochromic thin films		•																			
Engineering																		•			
Fractal phenomena																•					
Laser modified physics and chemistry																•					
Magnetocardiography																•					
Mathematical modelling									•												
Polymer conformations									•							•					
Radioactive sources									•							•					
Semiconducter laser interactions									•												
Statistical physics									•												
Surface science									•												
Superconductors (high temperature)									•												
Theoretical particle physics									•							•					
Thermal expansion in solids									•												
Ultrasonic propagation									•												
VHF/UHF signal propagation									•												
Viscous fingering																					
Physiological control systems																•					
Planning (map)								•	•									•			
Plant biotechnology																					
Plant breeding									•		•				•						
Plant pathology									•		•		•								•
Plant production											•		•								
Plant protection									•				•								
Plant science													•								
Plasma spray coating			•						•				•								
Plasma spray processing			•															•			
Pollutants (air)									•						•						
Pollution control																•					
Pollution (fresh water)															•						•
Pollution (marine)																			•		
Population genetics									•												
Poultry									•												•
Power systems											•		•								
Process control																		•			
Product development									•									•			
Production systems															•						
Production systems (animal)																		•			
Propulsion systems (ships & submarines)													•								
Psychology										•											
Pultrusion processing			•						•								•				
Radioactive sources									•												
Radioactive waste management									•												
Reagents (synth.) for hydrocarbon sep									•												
Real time multitasking systems				•													•				
Regional reconnaissance					•												•				
Rehabilitative (physical technology)									•								•				
Rehabilitation engineering									•												
Remote sensing									•									•			
Resource industries							•		•								•				
Resource management									•												•
Resource management (coastal)									•												•
Resource management (natural)									•								•				
Rheology									•					•							

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Robotics																					
Rubber (structural)		•																	•		
Safety (occupational)									•												•
Seaweeds						•			•												
Sedimentary basins					•				•						•			•			
Sedimentary process					•				•									•			
Sedimentology		•							•									•			
Seismics (deep reflection)					•				•									•			
Seismics (refraction)					•				•												
Ship dynamics									•	•											
Signal processing									•	•											
Signal processing (digital)				•					•	•								•	•		
Software engineering									•										•		
Soils (chemistry)									•				•								
Soil conservation													•								
Soil microorganisms and fermentation									•				•						•		
Soil science												•									•
Soil tillage													•						•		
Software (embedded)				•																	
Sonar										•											
Sonar feature extraction																					
Statistics									•									•			
Storage/handling sys (fruit/vegetables)													•						•		
Storage (food)		•										•		•							
Stratigraphy		•											•								
Structural mechanics (ships and subs)																		•			
Superconducting ceramics										•											
Superconductors (high temperature)																			•		
Surveillance acoustics																•					
Surveying										•											
Sustainable agricultural technologies								•													
Sustained drug release (dental)									•			•		•							
Technology impact assessment									•												
Technology management									•												
Technology transfer				•					•												
Tides and water levels									•						•						
Toxicology (agriculture)									•	•											
Transducer design (underwater)									•		•	•		•							
Underwater acoustics									•	•											
Vegetable harvesting (automation)									•	•											
Vegetables													•	•					•		
VLSI design												•		•							
Volcanology		•																	•		
Submarine impact structures				•																	
Waste (agricultural)																		•			
Waste management (radioactive)																			•		
Waste management (solid and hazardous)									•												
Waste (oil)		•													•						•
Waste resources																					
Water pollution									•										•		
Water resources									•						•					•	
Welding technology									•										•		
Wildlife biology		•								•											
Wind energy																					
Wood quality control																			•		
X-ray diffractometry															•						
								•											•		

Additional Sources of Technical Expertise and Information

This section contains brief information about a number of public sector sources of technical information and services for industry. It focusses on sources available in Nova Scotia or accessible through intermediaries in the province. It is not an exhaustive listing, but is designed to give industry some useful leads.

There are also many private sector sources of technical expertise and information which are outside the scope of the Directory.

Canadian Industrial Innovation Centre

The Canadian Manufacturing Advanced Technology Exchange (CANMATE)

Libraries

National Research Council- Canada Institute for Scientific and Technical Information (CISTI)

Nova Scotia College of Art and Design

Nova Scotia Community College System

Patent Office

Technology Inflow Program

Technology Transfer Office

Canadian Industrial Innovation Centre

156 Columbia St West
Waterloo, Ontario
N2L 3L3
1-800-265-4559

Affiliated organizations in Nova Scotia:

- Nova Scotia Research Foundation Corporation (902) 424-8670
- Technology Transfer Office (902) 424-7381

Provides low-cost services to inventors and entrepreneurs including evaluation of the commercial potential of inventions, market information and product development.

The Canadian Manufacturing Advanced Technology Exchange (CAN-MATE)

One Yonge Street
14th Floor
Toronto, Ontario M5E 1J9
(416) 363-7261

The Canadian Manufacturing Advanced Technology Exchange (CAN-MATE) is a centralized source of information and advice to help Canadian manufacturers compete more favourably in world markets by adopting new technologies. The Exchange has a four-fold mandate:

- to foster greater cooperation and sharing of information, technology centres and appropriate government facilities;
- to monitor developments and exchange information with national facilities in other countries for the benefit of Canadian industry;
- to define and coordinate technology development, diffusion and demonstration projects at the request of an industry or company
- to act as a source of advice to governments in Canada on how to encourage the development and application of advanced manufacturing technologies.

Libraries - Public and Institutional

Public libraries: many public libraries have access to business and technology databases and reference material.

Institutional libraries: refer to the institution profiles for information on their reference libraries and access to databases.

National Research Council
Canada Institute for Scientific and Technical Information (CISTI)

CISTI CAN/OLE
National Research Council Canada
Ottawa, Ontario
KIA OS2

Tel: (613) 993-1600

Access and advice in Nova Scotia available from:

- Atlantic Research Laboratory (902) 426-8589
- Industrial Research Assistance Program (IRAP) officers (902) 426-6264
- Nova Scotia Research Foundation Corporation (902) 424-8670

CISTI is Canada's largest technical information service. In addition to its own collection, CISTI staff have access to hundreds of national and international databases. They respond to nearly half a million requests for information each year.

Subscribers to CISTI's Canadian Online Information Retrieval Service (CAN/OLE) can search the databases from their own computer terminals.

Nova Scotia College of Art and Design

Computer Centre
5163 Duke Street
Halifax, N. S. B3J 3J6
Tel: (902) 422-7381

Contact: Mr. Daniel Potvin, Computer Centre Director.

The Nova Scotia College of Art and Design Computer Centre has a four-fold mandate:

- to introduce designers and artists to the creative potential of the computer;
- to provide an accessible working environment for designers and artists interested in computer applications in the visual arts;
- to establish and maintain expertise in areas of research and production important to the use of computers in the art and design fields;
- to maximize the potential benefits from that expertise.

Key areas of expertise:

- computer graphics
- computer animation
- electronic publishing
- multi-media

Nova Scotia Community College System

Courses are provided in the trades, technical, technological and applied arts fields. Programs are at the secondary and post-secondary levels. Industry sector training needs can be addressed.

Annapolis Campus
Attn: Mr. J.R. Norton
P.O. Box 940
Commercial Street
Middleton, NS B0S 1P0
Phone: 825-3491

Burridge Campus
Attn: Mr. G. Avis
372 Pleasant St.
Yarmouth, NS B5A 2L2
Phone: 742-3501

Cape Breton Adult Vocational
Training Campus
Attn: Mr. Gerald Beaton
Glace Bay Highway
P.O. Box 1042
Sydney, NS B1P 6J7
Phone: 563-2450

Colchester Regional Vocational School
Attn: Mr. R.J. MacDonald
60 Lorne Street
P.O. Box 850
Truro, NS B2N 3K3

College of Geographic Sciences
Attn: Mr. John Wightman
P.O. Box 10
Lawrencetown, NS B0S 1M0
Phone: 584-2226

Cumberland Campus
Attn: Mr. S.K. Uberoi
1 Main Street
P.O. Box 550
Springhill, NS B0M 1X0
Phone: 597-3737

Dartmouth Adult Vocational Training Campus
Attn: Mr. Denis MacDonald
10 Acadia Street
Dartmouth, NS B2Y 4H3
Phone: 424-8640

Halifax Campus
Attn: Mr. John MacNeil
1825 Bell Road
Halifax, NS B3H 2Z4
Phone: 424-7999

Hants Campus
Attn: Mr. W. Quinn
Wentworth Road
P.O. Box 2079
Windsor, NS B0N 2T0
Phone: 798-8349

Institute of Technology
Attn: Mr. Dennis Godley
5685 Leeds Street
P.O. Box 2210
Halifax, NS B3J 3C4
Phone: 424-7529

I. W. Akerley Campus
Attn: Mr. Frank Pottie
21 Woodlawn Road
Dartmouth, NS B2W 2R7
Phone 434-2020

Kingstec
Attn: Mr. Richard French
Belcher Street
P.O. Box 487
Kentville, NS B4N 3X3
Phone: 678-7341

Lunenburg Campus
Attn: Dr. Gary Ramey
75 High Street
Bridgewater, NS B4V 1V8
Phone: 543-2295

Memorial Composite
Attn: Mr. Alex Gilchrist
Fraser Avenue
P.O. Box 300
Sydney Mines, NS B1V 2Y5
Phone: 736-6233

Nautical Institute
Attn: Mr. Thomas Kearsey
P.O. Box 1225
Reeves Street
Port Hawkesbury, NS B0E 2V0
Phone: 625-2380

Pictou Campus
Attn: Mr. Hugh MacDonald
Acadia Street
P.O. Box 820
Stellarton, NS B0K 1S0
Phone: 752-2002

Shelburne Campus
Attn: Mr. John MacLellan
Sandy Point Road
P. O. Box 760
Shelburne, NS B0T 1W0
Phone: 875-3091

Strait Campus
Attn: Mr. Ronald L. MacNeil
P. O. Box 2000
Reeves Street
Port Hawkesbury, NS B0E 2V0
Phone: 625-2200

Sydney Campus
Attn: Mr. Gurdev Jolly
365 Prince Street
Sydney, NS B1P 5L2
Phone: 564-4574

Patent Office

Intellectual Property Directorate
Consumer and Corporate Affairs Canada
Ottawa, KIA 0C9
Tel: (819) 997-1936

Intermediaries for the Patent Office in Nova Scotia:

- Atlantic Institute of Biotechnology (902) 421-1072
- Industrial Research Assistance Program (IRAP) officers (902) 426-6264
- Nova Scotia Research Foundation Corporation (902) 424-8670
- Technology Transfer Office (902) 424-7381

Technology services include:

- information on procedures for filing a patent application and registering a trade mark, industrial design or copyright;
- information on patent searching and patent reference materials;
- technology search services for small and medium-sized companies to identify the state-of-the-art in a specific technology.

Technology Inflow Program (TIP)

The Manager
Science, Technology and Communications Division
Department of External Affairs
125 Sussex Drive
Ottawa, Ontario
K1A 0G2
(613) 996-0971

Services in Nova Scotia available through the Industrial Research Assistance Program (IRAP) officers (902) 426-6264.

The Technology Inflow Program (TIP) promotes the acquisition of foreign technological innovation needed to develop new or improved Canadian products, processes, or services. It does this by making use of Canadian government offices abroad to locate and facilitate linkages with foreign sources of technology (TIP Post Services). Specially assigned staff in several of Canada's diplomatic posts abroad will:

- respond to specific requests from Canadians to identify foreign technology sources and investigate opportunities for collaboration;
- arrange for the prospective partners to be brought together to discuss the technical, commercial and legal aspects of specific technology transfers;
- provide other support as appropriate to the Canadian recipients.

Technology Transfer Office

World Trade and Convention Centre, 6th Floor
1800 Argyle Street, Box 519
Halifax, Nova Scotia B3J 2R7
(902) 424-7381

Contact: Kay Crinean, Director

The Technology Transfer Office (TTO), under the Canada/Nova Scotia Technology Transfer and Industrial Innovation Agreement, provides information, services and coordination to facilitate interaction between industry and the research community in Nova Scotia.

Services include:

- matchmaking of industry and public sector research expertise;
- supplying research and development information;
- supplying business development information;
- advice, particularly during the early stages of a project;
- referrals for technology and business-related government programs and services;
- acting as an intermediary for the Canada Patent Office and the Canadian Industrial Innovation Centre.
- sponsoring information sessions on topics dealing with the technological innovation process;
- hosting networking events in the technology community.

Government Programs

The programs described in this section provide financial support for science and technology research, development and capital investment. The descriptions are brief and readers are advised to obtain more detailed information from the contact people listed.

Government programs for general business support which are not specific to technology are not included.

Advanced Manufacturing Technology Application Program
Atlantic Canada Opportunities Agency Action Program
Defence Industry Productivity Program
Defence Industry Research Program
Industrial Research Assistance Program (IRAP)
Microelectronics and Systems Development Program
Research Partnerships Program
Strategic Technologies Program
Technology Advancement Program
Technology Collaboration Program
Technology Inflow Program
Technology Outreach Program - Advanced Industrial Materials (TOP-AIM)
Technical People in Industry

Advanced Manufacturing Technology Application Program

Financial assistance to help companies to engage an outside consultant to assess the feasibility of substantially upgrading their manufacturing or secondary processing operations through the more effective use of advanced manufacturing technologies. The latter include CAD/CAM, robotics, total quality control and just-in-time manufacturing.

Who can apply?

Any taxable company operating in Canada engaged in manufacturing or secondary processing.

Support available

Up to 75% of the costs of consultants to a maximum of $25,000 for projects involving only one company. The maximum for a joint application for a group of companies is $200,000 per application.

Contact:

Lynn Pammett
Industry, Science and Technology Canada -Nova Scotia
P.O. Box 940, Station M
Halifax, N.S. B3J 2V9
(902) 426-9364

Atlantic Canada Opportunities Agency Action Program

Financial assistance for small and medium-sized businesses for innovation, capital investment and business studies. Non-profit business support services are also eligible.

Who can apply?

Small and medium-sized businesses in Atlantic Canada in various sectors, including: manufacturing, processing, aquaculture, certain agricultural industries, logging, mining, tourism, commercial research and development facilities, business services, repair and maintenance, storage and warehousing.

Support available

Innovation assistance: up to 60% of the eligible costs of projects to advance the level of technology in use in the region, improve productivity or develop new or improved products.

Capital investment: includes grants up to 50% contribution for projects under $200,000, loan insurance and interest buy-downs (reducing rate by as much as 6%) on projects up to $20 million.

Business studies: up to 75% of eligible costs.

Contact:

Ken Littlepage or Geoff Lewis
Atlantic Canada Opportunities Agency
Suite 3000, The Brewery
1489 Hollis St
Halifax, N.S. B3J 3M5

(902) 426-9418
(902) 426-9952

Defence Industry Productivity Program

Financial assistance to develop and maintain strong defence-related industries across Canada that are capable of competing successfully over the long term in domestic and export markets.

Who can apply?

Any corporation, institution, co-operative, association, partnership or individual wishing to undertake a project in Canada, related to the development, manufacture or support of defence-related products.

Support available

Research and development: support for research and development of defence-related products and for sustaining the associated technology base.

Market feasibility: support for studies for defence-related product specifications and market characteristics.

Source establishment: support for the establishment of qualified Canadian suppliers of defence-related products.

Capital assistance: support for the acquisition of advanced production equipment to modernize or upgrade engineering and/or manufacturing capability in Canada for defence-related products.

Up to 50% of eligible costs can be covered.

Contact:

Lynn Pammett
ISTC - Nova Scotia
P.O. Box 940, Station M
Halifax, N.S. B3J 2V9
(902) 426-9364

Defence Industry Research Program

Financial assistance to promote and improve the research and technological capabilities of the Canadian defence industry.

Who can apply?

Companies incorporated in Canada which have sufficient autonomy to permit the application of the research results from a Canadian base in the best interests of the Canadian economy.

Support available

Up to 50% of eligible costs.

Contact:

Walter Ellis
Staff Officer / Plans and Programs
Defence Research Establishment Atlantic
P.O. Box 1012
Dartmouth, N. S. B2Y 3Z7
(902) 426-3100

Industrial Research Assistance Program (IRAP)

Financial support for technology development as well as help in finding appropriate technology from Canadian and international sources.

Who can apply?

Canadian firms in the manufacturing, resource, construction and service industries. Some programs are restricted to small-to-medium size firms.

Support available

Field Advisory Service (IRAP-C)

The IRAP Advisor can assist a firm to define its technical needs, identify opportunities, obtain information and assistance, solve technical problems and access technology.

International Technology Service (IRAP-I)

Assistance to firms to locate and use technology from foreign sources.

Projects employing students (IRAP-H)

Financial support to hire a university or technical college student to work on a short term project involving a manufacturing or production problem, product design, quality control, industrial engineering, etc. IRAP covers most of the student's salary and the services of Project Technology Counsellors as required.

Short-term Projects (IRAP-L)

Financial assistance to small companies to hire appropriate laboratories, institutes or consulting firms to solve technical problems or carry out testing requirements. Covers up to $5,000 (or 65%, whichever is lower) for projects of up $12,000 in total cost.

Medium-term projects (IRAP-M)

Financial assistance up to $100,000 towards the salaries of technical personnel, from the firm or subcontracted, for specific projects to develop new or improved products and processes.

Long-term projects (IRAP-R)

For a project with high risk but high potential benefits IRAP can contribute funds to help a firm team up with research experts in Canada or elsewhere.

Contact:

David Healey
IRAP Coordinator
National Research Council Canada
c/o Technical University of Nova Scotia
P.O. Box 1000
Halifax, N.S. B3J 2X4
(902) 426-6264

Or contact the nearest IRAP advisor listed in the Yellow Pages under Technology – Assistance Programs.

Microelectronics and Systems Development Program

Financial support to encourage Canadian companies to undertake technologically innovative ventures in microelectronics and systems development.

Who can apply?

Any taxable corporation operating in Canada.

Support available

Up to 50% of eligible costs to a maximum of $5.0 million. Repayment is required for contributions exceeding $500,000.

Contact:

John Chesley
ISTC-Nova Scotia
P.O. Box 540, Station M
Halifax, N. S. B3J 2V9
(902) 426-8485

Research Partnerships Program

The Natural Sciences and Engineering Research Council (NSERC) offers a special program to accelerate partnerships among Canadian universities, federal government departments and industry. NSERC will help companies locate university-based expertise and will make substantial contributions to the cost of the industrially relevant research conducted by universities. It also provides financial support to enable companies to hire undergraduates and recent Ph.D graduates. Joint programs with federal government departments are under development.

Who Can Apply?

Applications must be submitted by university researchers holding at least the rank of Assistant Professor.

Support Available

The following are examples of the shared-cost ventures NSERC supports under this program:

Cooperative Research and Development Programs

Grants for projects ranging from short-term endeavours to commercialize a university innovation to long-term university research in a technology relevant to Canadian companies. Industrial contribution and involvement are required.

Shared Equipment and Facilities

Contributions towards joint acquisition or upgrading of research equipment for use by industrial and university researchers.

Industrial Research Chairs

A major initiative that allows universities to build strength in scientific and technical fields important to industry. Grants pay for salaries of research professors of international calibre and for equipment and research costs. Industrial contributions and research collaboration are mandatory.

NSERC Visiting Fellowships

Salary support for senior researchers either in industry or universities who take leave in the other sector. The objectives are to enhance the industrial orientation of university laboratories and to stimulate productive interchange between sectors.

Workshops and Seminars

Contributions towards the organization of workshops, seminars and exhibits involving participants from both sectors. Subjects may range from a technology of interest to a company to an in-depth analysis by university researchers of a particular industrial problem.

Industrial Research Fellowships

Provides up to three years salary support for a company adding a recent doctoral graduate to its research and development team.

Industrial Undergraduate Student Research Awards

Salary support for qualified undergraduate students wishing to obtain industrial research experience.

Contact:

Natural Sciences and Engineering Research Council
200 Kent Street
Ottawa, Ontario
K1A 1H5
(613) 996-1898

Strategic Technologies Program

Financial assistance for the development and application of advanced industrial materials (AIM), biotechnology and information technologies. This program will help Canadian companies establish formal relationships – alliances – with other Canadian firms, foreign firms, universities or research institutes that wish to pool resources on innovative projects to develop or apply technology. It is intended that the work of these alliances will enhance the international competitiveness of Canadian companies.

Who Can Apply?

Projects must involve alliances among companies and may include universities or research institutions as participants or sub-contractors.

Support Available

Research and Development alliances or technology application alliances may receive non-repayable contributions of up to 50% of the eligible costs of each project.

Feasibility studies may be eligible for a contribution of up to $50,000, which is to be at least matched by the proponents of the alliance.

Contact

Informatics or Advanced Industrial Materials

Lynn Pammett
Industry, Science and Technology Canada – Nova Scotia
1489 Hollis Street
P.O. Box 940, Station M
Halifax, N.S. B3J 2V9
(902) 426-9364

Biotechnology

Charlotte Murray
ISTC- Nova Scotia
1489 Hollis Street
P.O. Box 940, Station M
Halifax, N.S. B3J 2V9
(902) 426-7543

Technology Advancement Program

Financial assistance for businesses to acquire more advanced technological equipment or services than are currently being utilized, so as to improve the firm's capabilities

Who can apply?

Businesses of any size in the manufacturing, processing and technological services sectors are eligible for assistance. Businesses receiving assistance must operate in Nova Scotia and the benefits must accrue to Nova Scotia operations.

Suppport available

Projects of both a capital and non-capital nature will be considered for assistance. Up to 50% of capital costs to maximum of $100,000, and 75% of non-capital costs to a maximum of $25,000 can be provided.

Contact:

Jerry O'Neill or John Fanning
Department of Industry, Trade and Technology
P.O. Box 519
Halifax, N.S. B3J 2R7
(902) 424-6765

Technology Collaboration Program

Financial assistance to promote the transfer of technology between the province's research institutions and local industry by supporting joint development projects, personnel interchange, student and graduate hiring, and technological infrastructure currently unavailable in the province.

Who can apply?

Business firms in Nova Scotia in the fields of manufacturing, processing, computer software development and technology services. Any educational or applied research institution in the province is also eligible for assistance under appropriate programs.

Support available

Joint projects involving technology application and commercialization require contributions from both the applicant and one or more collaborating organizations.

Technology application and commercialization may receive a maximum contribution of 33.3%. Support for personnel interchange of up to 50% of direct salary costs for one year of a project and 25% in year two is available. The program can also provide up to 75% of the direct salary cost for eligible students or recent graduates to help businesses solve a particular technological problem (maximum 1 year contribution).

Contact:

Ivor Harrington or John Fanning
Nova Scotia Department of Industry, Trade and Technology
P.O. Box 519
Halifax, N.S. B3J 2R7
(902) 424-6764

Technology Inflow Program

Promotes the acquisition of foreign technologies needed to develop new or improved Canadian projects, processes, or services. It does this in two ways. First, it assists in locating and facilitating linkages with foreign sources of technology (TIP Post Services). Second, it provides financial support to assist Canadian scientists and engineers in gaining first hand knowledge of foreign technologies relevant to their needs (TIP Fund).

Who can apply?

Individuals or organizations in the private sector, as well as provincial governments, universities, and federal departments or agencies.

Support Available

TIP Post Services

Specifically-assigned staff in several of Canada's diplomatic posts abroad will:

- respond to specific requests from Canadians to identify foreign technology sources;
- arrange for prospective partners to be brought together, and provide other support as appropriate.

TIP Fund

Financial support for missions abroad and medium term working visits. Almost exclusively directed at helping Canadian small and medium-sized businesses acquire foreign technologies.

Contact:

David Healey
IRAP Coordinator
National Research Council Canada
c/o Technical University of Nova Scotia
P.O. Box 1000
Halifax, N.S. B3J 2X4
(902) 426-6264

Or contact the nearest IRAP advisor listed in the Yellow Pages under Technology – Assistance Programs.

Technology Outreach Program – Advanced Industrial Materials (TOP-AIM)

Financial assistance to support non-profit, private sector national networks of university scientists, engineers and industrialists. These networks will exchange information, identify emerging technologies and applications, and draw attention to domestic and international markets of strategic importance.

Who can apply?

Existing and new national networks, small scale regional networks, isolated associations and informal business or research linkages.

Support available

Up to 50% of eligible costs.

Contact:

Lynn Pammett
ISTC-Nova Scotia
P.O. Box 940, Station M
Halifax, N.S. B3J 2V9
(902) 426-9364

Technical People in Industry

Financial assistance to small and medium-sized companies in Nova Scotia who lack technical resources inhouse to hire a graduate scientist, engineer or technologist for one year. Project must involve work on technical problems ranging from productivity and quality improvements to new product and process development.

Who can apply?

Small and medium-sized companies in Nova Scotia.

Preference will be given to companies involved in the following types of business: manufacturing, processing, agriculture, aquaculture, mining, forestry, lumbering, construction and technical services.

Support available

Assists businesses in hiring graduates of approved technical, scientific and engineering programs. Reimburses up to 75% of direct salary costs for up to 6 months and 50% for the remainder of the year.

Contact:

Ian Glass
Nova Scotia Research Foundation Corporation
P.O. 790
Dartmouth, N.S. B2Y 3Z7
(902) 424-8670